Appendix K

STREAM AND WETLAND DELINEATION

Barrelhead Solar, LLC

Wayne County, Kentucky

COPPERHEAD
ENVIRONMENTAL CONSULTING

Wetland and Stream Delineation Report for the Proposed Barrelhead Solar Project in Wayne County, Kentucky

Prepared for:
Barrelhead Solar, LLC

11 August 2025

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TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

Appendix A – Figures

Appendix B – Representative Stream and Wetland Photographs

Appendix C – Antecedent Precipitation Tool Results

Appendix D – Data Forms

Appendix E –Resumes

ACRONYMS AND ABBREVIATIONS

APT	Antecedent Precipitation Tool
CWA	Clean Water Act
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
RPW	Relatively Permanent Waters
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOTUS	Waters of the United States

1 INTRODUCTION

Barrelhead Solar, LLC, (Barrelhead or the Applicant) contracted Copperhead Environmental Consulting, Inc. (Copperhead) to locate and delineate wetlands, streams, ponds, and other aquatic resources in connection with the proposed Barrelhead Solar project (Project) in Wayne County, Kentucky. The Project consists of an approximately 307-acre Study Area (*Figure 1 – Overview Map* in Appendix A). The field delineation was conducted on August 17, 2024 through August 20, 2024, by Copperhead employees D. Hunter and I. Bentley, and on September 30, 2024, by Copperhead employees I. Bentley and S. Davis.

1.1 Site Conditions

The Project Area is located within the Eastern Mountains and Piedmont physiographic province, southwest of Lake Cumberland. Vegetation communities were predominantly disturbed, non-native communities, comprised primarily of agricultural/disturbed grassland species, with occasional areas of mesic forest and floodplain wetlands. The agricultural/disturbed grassland areas were comprised primarily of tall fescue (*Schedonorus arundinaceous)* and clover (*Trifolium* sp.). The mesic forests were dominated by eastern redcedar (*Juniperus virginiana*), sugar maple (*Acer saccharum*), wingstem (*Verbesina alternifolia*), and non-native shrubs and herbs such as Chinese privet (*Ligustrum sinense*) and Japanese stiltgrass (*Microstegium vimineum*). Project Area soils were generally characterized as silty loams, with some sandy/silty clay loam profiles occurring within wetland areas and alluvial areas adjacent to streams. One United States Department of Agriculture (USDA)-mapped hydric soil unit is present within the Project Area: Newark silt loam, occasionally flooded (Ne), totaling approximately 5.4 acres (1.6%) of the Study Area (USDA NRCS 2021; Soil Survey Staff 2022). See *Figure 7 – USDA SSURGO Soil Classifications* and the Custom Soil Resource Report for Wayne County, Kentucky: Birch Creek Barrelhead Solar in Appendix A.

The majority of the Project Area is actively maintained for agriculture practices such as cattle and horse pasture and row crop production. Some forested buffers exist on steep slopes within ravines and wetlands with poorly consolidated soils. Based on a review of the United States Army Corps of Engineers (USACE) Antecedent Precipitation Tool (APT), climatic conditions were considered normal for the location and time of year during the field survey (Appendix C). Representative photographs showing site conditions at the wetland determination data point and stream assessment point locations are included in Appendix B.

2 METHODS

2.1 Preliminary Desktop Analysis

Prior to the field survey, a preliminary desktop analysis of available information was conducted using the following sources:

- National Land Cover Database (NLCD) (Dewitz and United States Geological Survey [USGS] 2024)
- Google Earth Pro (2025)
- Federal Emergency Management Agency (FEMA) National Flood Hazard Map (FEMA 2009)
- National Wetlands Inventory (NWI) Map (United States Fish and Wildlife Service [USFWS] 2021)
- The National Hydrography Dataset (NHD) (USGS 2023)
- USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (Soil Survey Staff 2022).

The locations of surface waters, wetlands, and floodplains identified during the preliminary desktop analysis were mapped (*Figure 3 – Existing Hydrology* and *Figure 4 – FEMA Chance Flood Hazard* in Appendix A) and used as a baseline reference that was compared, verified, and/or modified based on actual conditions observed during the field investigations using the methodologies outlined in Sections 2.2 and 2.3.

2.2 Methods for Delineating Wetlands

Copperhead conducted field investigations to identify the presence and extent of wetlands. When present, the boundaries of wetlands within the Project Area were delineated in accordance with the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers' Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE 2012). Ultimately, wetland delineations were based on the presence of wetland hydrology, hydrophytic (wetland) vegetation, and hydric soils. Wetlands were described using Cowardin classes (Cowardin et al. 1979). The Cowardin Classification System was adopted by the USFWS and became a National Standard in 1996 for federal agencies to describe the type of wetland feature present (FGDC 2013).

When delineating the extent of wetlands, observations of the presence of wetland hydrology indicators were initially made. Vegetation species at each wetland determination data point were then identified, and the wetland indicator status of each plant species was determined according to the 2022 National Wetland Plant List (USACE 2022). Finally, soil profiles within each respective community were sampled to a depth of approximately 18 inches to determine whether hydric soil indicators were present. Soil colors were documented using a Munsell Soil Color Chart (Munsell Color 2010). Areas with the presence of all three wetland indicators (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were delineated as wetlands. Areas with one or more parameters were considered "significantly disturbed" or "naturally problematic" based on the 1987 manual, and the Eastern Mountains and Piedmont (EMP) regional supplement were evaluated on a case-by-case basis.

At locations where wetland indicators were met (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils were present), a USACE Wetland Determination Data Form for the EMP region was completed. Each data form included supporting rationales for determining the presence or absence of each wetland parameter.

Ponds within the Project Area were identified and differentiated from wetlands based on water depth, vegetation presence, and (where applicable) vegetation type. Features with only open waters or deepwater habitats were considered ponds, and a wetland fringe surrounding each pond was delineated separately wherever present.

The wetland boundaries within the Project Area were delineated using Trimble global positioning system (GPS) handheld DA-2 and R-1 units. GPS data were collected using the ArcGIS Online Field Maps application. The GPS points of wetland boundaries and data point locations (including coordinates and attribute information) were subsequently imported into ESRI ArcGIS software for creating maps of delineated wetlands and calculating wetland acreages.

2.3 Methods for Assessing Streams

Hydrologic features other than wetlands (e.g., stream channels) were delineated in the field by identifying the ordinary high-water mark (OHWM). OHWM is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR 328.3(c)(7)).

The Kentucky Energy and Environmental Cabinet has not released a state-specific methodology for evaluating the frequency and duration of flow within the state. To determine the flow regime for each stream (e.g. intermittent, perennial or ephemeral channel), Copperhead evaluated watercourses using methodologies derived from the Tennessee Department of Environment and Conservation (TDEC) Guidance for Making Hydrologic Determinations (Barbour et al. 1999, TDEC 2020) and the North Carolina Stream Assessment Method (NC SAM) Draft User Manual (NC SFAT and USACE 2013). Features meeting the definition of streams were assessed for flow regime (i.e., ephemeral, intermittent, or perennial) and listed according to their Cowardin classification (1979). All natural linear features with a defined bed and bank, OHWM, intermittent or perennial flow regime, and observed or mapped hydrologic connection to navigable waters downstream were considered jurisdictional waters of the United States (WOTUS). Locations of delineated streams were evaluated and recorded with a Trimble DA2 GPS unit.

2.4 Jurisdictional Statuses

2.4.1 Federal Jurisdiction

Jurisdictional statuses were defined for each delineated resource using the most up-to-date federal guidance current as of Monday, August 11, 2025. On March 12, 2025, revised guidance from the USACE and the U.S. Environmental Protection Agency (EPA) was published in the Federal Register, conforming to rulings from the case of *Sackett vs. EPA* regarding determinations of the jurisdictional status for wetlands and waterbodies. The 2025 guidance expanded on the previous conforming Guidance from September 2023, which removed the significant nexus standard introduced previously under the Rapanos rules and eliminated the portion of the January 2023 definitions that considered all interstate waters jurisdictional. The 2025 guidance officially states that only wetlands and streams with direct, continuous, relatively-permanent surface connections to navigable WOTUS were considered jurisdictional. As such, federal jurisdictional statuses for wetlands and waters were based on the relative permanence of a feature, and the presence of a direct surface connection between wetlands, relatively permanent waters (RPWs), and downstream WOTUS. Only those waters with relatively permanent stagnant or flowing water and a continuous overland connection to downstream navigable waters were deemed jurisdictional at the federal level.

3 RESULTS

3.1 Desktop Analysis Results

The following information on soils and hydrology was gathered to inform and prepare the field team completing the delineation.

3.1.1 Site Soils

A review of the NRCS Web Soil Survey and a Custom Soil Resource Report for the Project Area identified eight soil map units (Soil Survey Staff 2022; USDA NRCS 2025). Of these, one soil map unit has a hydric soil rating: Newark silt loam, occasionally flooded (Ne). The hydric soil map unit occupies approximately 5.4 acres (1.6%) of the Study Area. See *Figure 7 – USDA SSURGO Soil Classifications* and the Custom Soil Resource Report for Wayne County, Kentucky: Birch Creek Barrelhead Solar in Appendix A.

3.1.2 Site Hydrology

The Project Area is within the Lower Otter Creek (Hydrologic Unit Code [HUC] 051301030502) subwatershed. According to the KY-RS-6: Jamestown 9.0 SSW precipitation gauge located near Monticello, Kentucky, the last significant precipitation event that occurred near the Project Area was recorded on July 31, 2024, with a total of 1.33 inches (Weather Underground 2025). The NWI features in this area were photo-interpreted using 1:58,000 scale color infrared imagery, most recently in 2021, and the NHD features were interpreted at a 1:24,000 scale, most recently in 2023

(USFWS 2021; USGS 2023). The Project Area includes three freshwater ponds (PUBHh) and two riverine features (*Figure 3 – Existing Hydrology* in Appendix A).

3.2 Field Survey Results

The following sections provide the field survey results for the wetland and stream delineation. Photographic documentation of the site and delineated aquatic features is provided in Appendix B. Results from the APT are provided in Appendix C. USACE Wetland Determination Data Forms are provided in Appendix D. Resumes of Copperhead personnel who completed the delineation are included in Appendix E.

3.2.1 Wetland Delineation

The field survey resulted in the identification of 12 wetlands, 22 streams, and one pond within the Project Area (*Figure 6.1-6.6 – Wetland Delineation Overview* in Appendix A). Classifications and size/length of each delineated feature are described in Table 1

Table 1. Summary of delineated aquatic resources within the Barrelhead Solar project Project Area, Wayne County, KY.

Feature Name	Latitude	Longitude	Feature Size (acres)	Feature Length (lf)	Cowardin Code[1]	HGM Code	JD Type[2]
WAE	36.781170°	-85.007088°	0.01	-	PEM	RIVERINE	Isolated
WAH	36.783647°	-85.005467°	0.24	-	PFO	DEPRESS	Isolated
WAI	36.783622°	-85.006985°	0.07	-	PFO	DEPRESS	Isolated
WAJ	36.772205°	-85.009243°	0.71	-	PFO	RIVERINE	Jurisdictional
WAK	36.772695°	-85.009540°	0.01	-	PFO	RIVERINE	Jurisdictional
WAL	36.773685°	-85.000566°	0.04	-	PFO	RIVERINE	Jurisdictional
WAM	36.777149°	-85.004052°	0.03	-	PFO	RIVERINE	Jurisdictional
WAN	36.776612°	-85.008998°	0.04	-	PFO	RIVERINE	Jurisdictional
WAO	36.776872°	-85.009604°	0.05	-	PEM	RIVERINE	Jurisdictional
WAP	36.776732°	-85.010344°	0.05	-	PEM	DEPRESS	Isolated
WBA	36.777954°	-85.012084°	0.03	-	PEM	RIVERINE	Jurisdictional
WBB	36.778184°	-85.007049°	0.25	-	PFO	DEPRESS	Isolated
PAB	36.782973°	-85.010168°	1.05	-	PUB	DEPRESS	Isolated
SAF	36.783678°	-85.005235°	-	2018.57	R6 (Ephemeral)	-	Ephemeral
	36.783673°	-85.006918°	-	1986.09	R4 (Intermittent)	-	Jurisdictional
SAJ	36.772716°	-85.009567°	-	98.50	R4 (Intermittent)	-	Jurisdictional

Feature Name	Latitude	Longitude	Feature Size (acres)	Feature Length (lf)	Cowardin Code[1]	HGM Code	JD Type[2]
SAK	36.772337°	-85.007167°	-	208.13	R6 (Ephemeral)	-	Ephemeral
SAL	36.772264°	-85.005242°	-	177.10	R4 (Intermittent)	-	Jurisdictional
SAM	36.772202°	-85.004951°	-	102.22	R4 (Intermittent)	-	Jurisdictional
SAN	36.772551°	-85.002650°	-	18.43	R4 (Intermittent)	-	Jurisdictional
SAO	36.773316°	-85.001054°	-	89.01	R6 (Ephemeral)	-	Ephemeral
SAP	36.781573°	-85.005021°	-	312.32	R6 (Ephemeral)	-	Ephemeral
SAQ	36.781222°	-85.007102°	-	92.72	R6 (Ephemeral)	-	Ephemeral
	36.780035°	-85.004248°	-	1318.39	R4 (Intermittent)	-	Jurisdictional
SAR	36.781712°	-85.006203°	-	262.32	R6 (Ephemeral)	-	Ephemeral
SAS	36.781555°	-85.006423°	-	214.98	R6 (Ephemeral)	-	Ephemeral
SAT	36.779816°	-85.005677°	-	472.71	R6 (Ephemeral)	-	Ephemeral
SAU	36.772098°	-85.010709°	-	7252.76	R3 (Perennial)	-	Jurisdictional
SAV	36.773231°	-85.010151°	-	388.99	R6 (Ephemeral)	-	Ephemeral

Feature Name	Latitude	Longitude	Feature Size (acres)	Feature Length (lf)	Cowardin Code[1]	HGM Code	JD Type[2]
SAW	36.772897°	-85.004096°	-	135.33	R6 (Ephemeral)	-	Ephemeral
SAX	36.774006°	-84.999223°	-	113.24	R4 (Intermittent)	-	Jurisdictional
SAY	36.777761°	-85.012098°	-	1927.96	R4 (Intermittent)	-	Jurisdictional
	36.775505°	-85.006185°	-	2052.40	R3 (Perennial)	-	Jurisdictional
SAZ	36.779822°	-85.009032°	-	1139.69	R6 (Ephemeral)	-	Ephemeral
	36.77745°	-85.005341°	-	1701.52	R4 (Intermittent)	-	Jurisdictional
SBA	36.778397°	-85.002642°	-	234.39	R4 (Intermittent)	-	Jurisdictional
SBB	36.777589°	-85.006213°	-	243.79	R6 (Ephemeral)	-	Ephemeral
SBD	36.777428°	-85.005400°	-	68.42	R6 (Ephemeral)	-	Ephemeral
SBM	36.771876°	-85.008116°	-	18.93	R4 (Intermittent)	-	Jurisdictional
0.91 acres JD Wetlands		**1.67 acres Isolated Wetlands**			**17,001.93 lf JD Streams**		**5,646.96 lf ephemerals**

[1]Classifications are based on Copperhead's professional judgment of actual field conditions.
[2]Jurisdictional determinations and boundaries, when presented, are preliminary and are subject to final verification by the USAC

Palustrine Emergent (PEM) Wetlands

Palustrine emergent (PEM) wetlands commonly appeared as small, ponded depressions within the surrounding landscape or along stream banks. These wetlands frequently exhibited some signs of disturbance resulting from runoff and erosion from agricultural practices and from cattle trampling. The PEM wetlands identified within the Project Area were dominated by wetland vegetation such as lamp rush (*Juncus effusus*), Japanese stilt grass (*Microstegium vimineum*), and mild water-pepper (*Persicaria hydropiper*). Soil profiles generally consisted of sandy clay loam and silty clay loam soils, with some having fine sandy loams within the first five inches of the profile. Common hydrology indicators included drainage patterns, surface water, and geomorphic position. USACE Wetland Determination Forms can be found in Appendix D.

Palustrine Forested (PFO) Wetlands

Palustrine forested (PFO) wetlands commonly appeared as depressions within the surrounding landscape or within ditches along streams. Disturbances within PFO wetlands consisted of cattle trampling in areas without cattle exclusion, though not as frequent as the PEM wetlands. The PFO wetlands identified within the Project Area supported a mix of wetland and upland vegetation consisting primarily of a canopy and midstory of black willow (*Salix nigra*), American sycamore (*Platanus occidentalus*), slippery elm (*Ulmus rubra*), spicebush (*Lindera benzoin*), and common pawpaw (*Asimina triloba)*. When present, the herbaceous layer was sparse, yet diverse. Soil profiles generally consisted of silty clay loam and clay loam soils, with the occasional sandy clay loam. Common hydrologic indicators included surface water, saturation, and oxidized rhizospheres along living roots. USACE Wetland Determination forms can be found in Appendix D.

Ponds (PUB)

The PUB feature appeared as an isolated pond characterized as an open water habitat of unknown depth. Hydrologic inputs for this feature are received from overland flow within the Project Area, and no obvious culverting or continuous, relatively permanent overland connection to downstream waters was observed during surveys. Vegetation was not present within the PUB feature at the time of the survey, and no fringe wetlands were present along the boundary. Soils were not sampled within the PUB feature due to saturation.

Ephemeral (R6) Drainages

Thirteen (13) ephemeral drainage features feed into tributaries of the Cumberland River. The drainage features exhibit weak characteristics of both bed and bank and have the potential to erode in areas of open pasture. Average OHWM width varies from one to three feet, and standing or flowing water was primarily absent in the channels during normal conditions at the time of survey (USACE 2023). Additionally, no aquatic organisms were observed while assessing the streams.

Intermittent (R4) Streams

Eleven (11) intermittent streams drain into tributaries of the Cumberland River, including SBA (Pott's Creek). The streams exhibit characteristics of both bed and bank, and exposed bedrock and signs of groundwater input from seeps/springs were observed frequently throughout the surveys. Average OHWM width varies from three to seven feet, and standing or flowing water was present in portions of each channel during normal conditions at the time of survey (USACE 2023). No fish were noted while assessing the streams, but common, more tolerant macroinvertebrates were occasionally found in the intermittent channels.

Upper Perennial (R3) Streams

Two (2) perennial streams ultimately feed into the Cumberland River. The streams exhibited strong characteristics of both bed and bank, and the average OHWM widths vary from seven to 15 feet. Continuous flowing water was present in the channel of each perennial stream during normal conditions at the time of survey (USACE 2023). Fish and macroinvertebrates were observed in abundance while assessing the streams for flow regime.

4 CONCLUSIONS

It is Copperhead's professional judgment that the ProjectArea contains 12 wetlands, one pond, and 22 streams. Of the wetlands identified, seven wetlands possessed a relatively permanent downstream connection to other waters. Therefore, these features would likely be considered jurisdictional under Section 404 of the Clean Water Act (CWA). The remaining five wetlands lack a relatively permanent connection to downstream waters. Therefore, these features would be considered isolated and would likely be non-jurisdictional under Section 404 of the CWA.

Of the 22 linear features identified within the Project Area, 14 possess a relatively permanent flow of water and would likely be considered jurisdictional under Section 404 of the CWA. The remaining linear features are ephemeral drainages that appear to flow only in direct response to precipitation and would likely be considered non-jurisdictional under Section 404 of the CWA.

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Appendix A
Figures

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FIGURE 1:
Project Overview for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

Project Boundary

0 750 1,500
US Feet

Scale: 1 in = 750 ft

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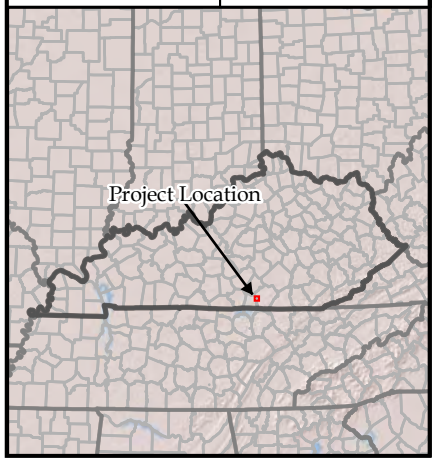
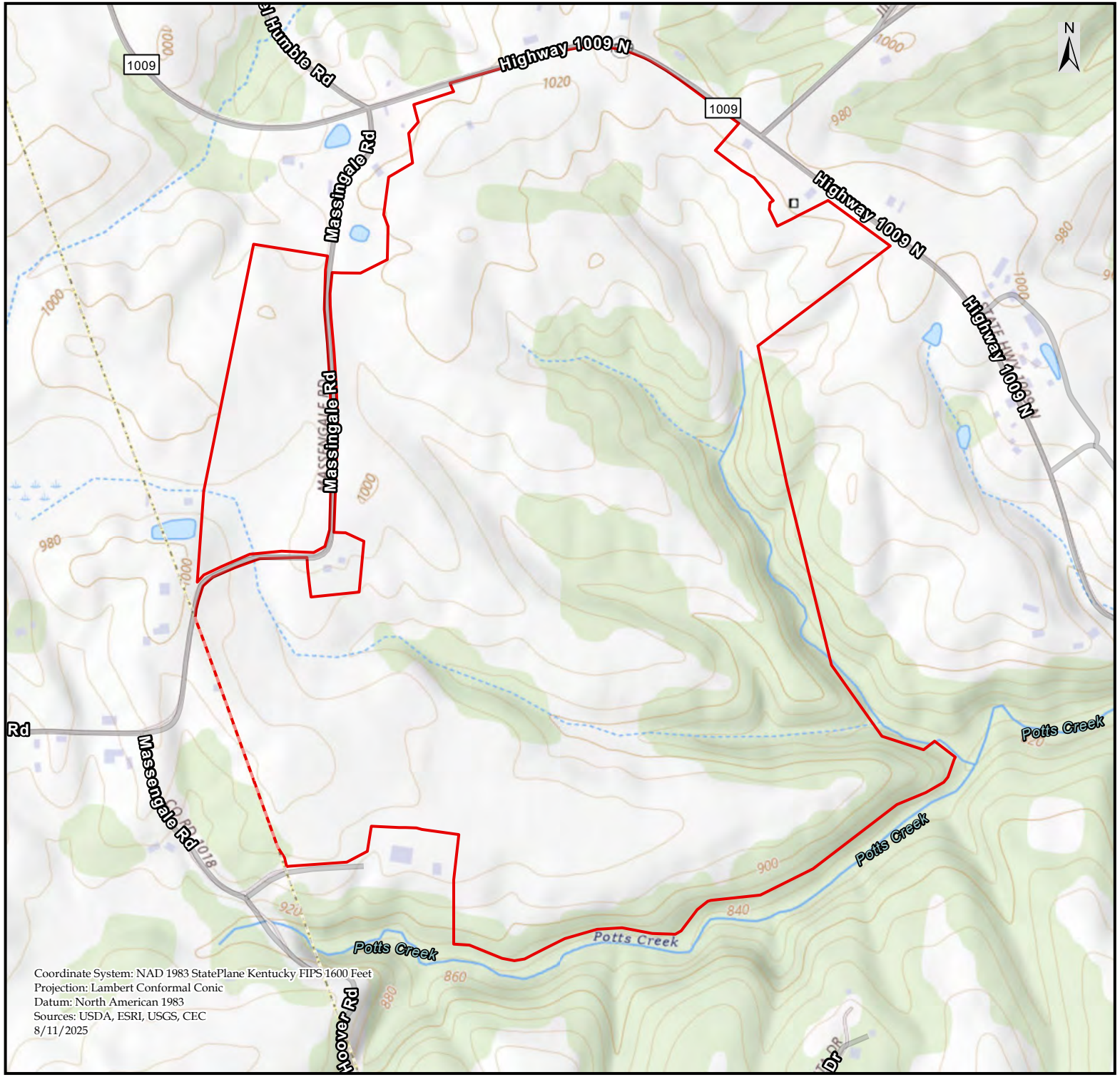
Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03





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Prepared for:

Barrelhead Solar, LLC

FIGURE 2:
Project Overview for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

Project Boundary

0 750 1,500
US Feet

Scale: 1 in = 750 ft

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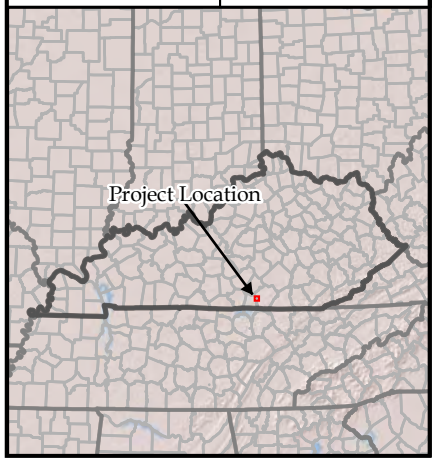
Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03



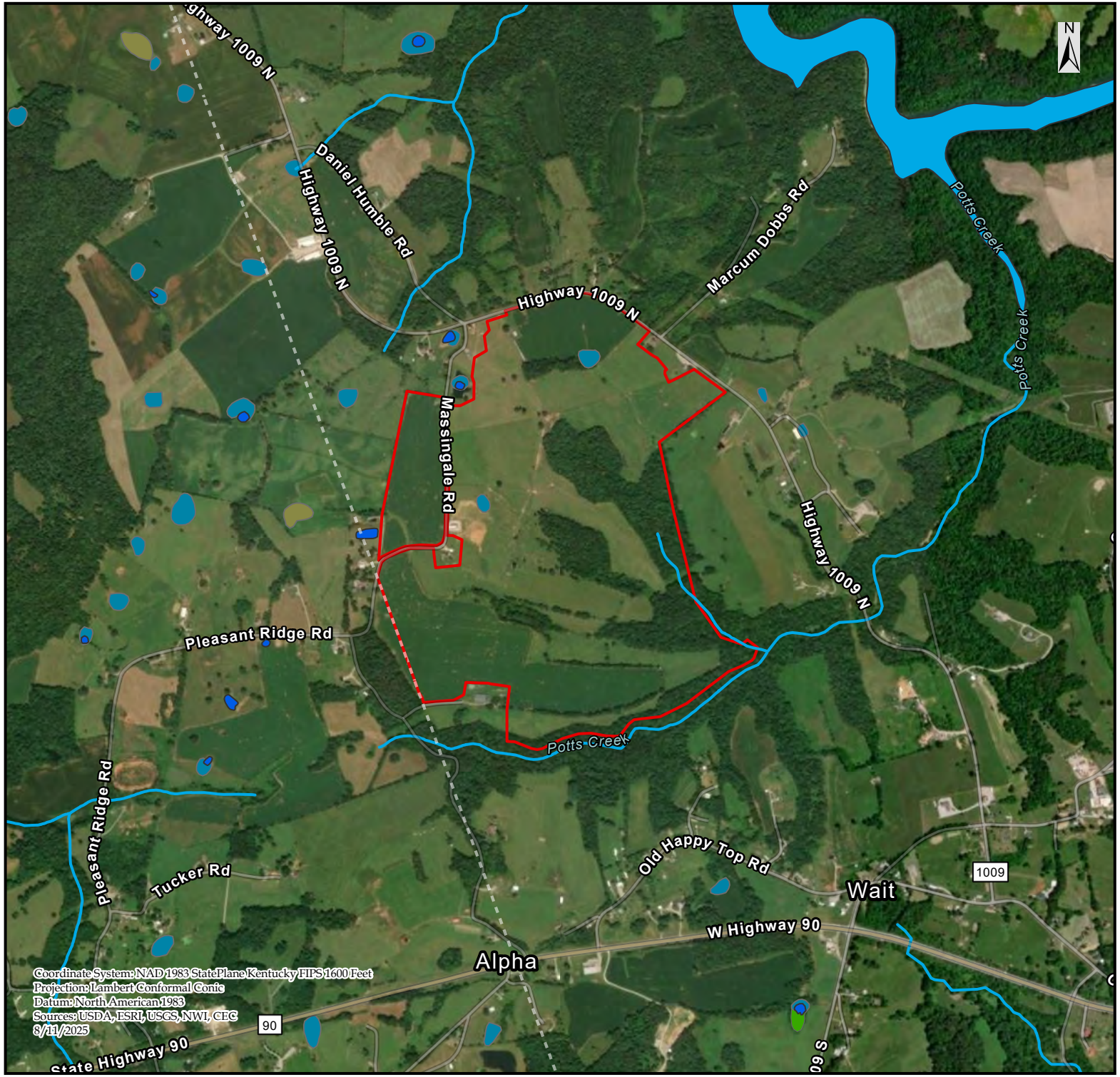


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FIGURE 3:
Existing Hydrography
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

- NHD - Stream/River
- NHD - Waterbody
- NWI - Freshwater Emergent Wetland
- NWI - Freshwater Forested/Shrub Wetland
- NWI - Freshwater Pond
- Project Boundary

0 1,500 3,000
US Feet

Scale: 1 in = 1,500 ft

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Drawn by:	CM	Date:	8/11/2025
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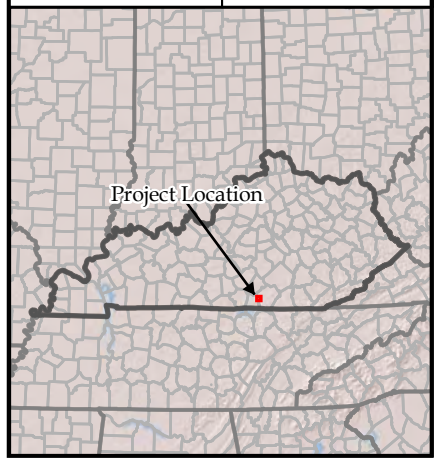

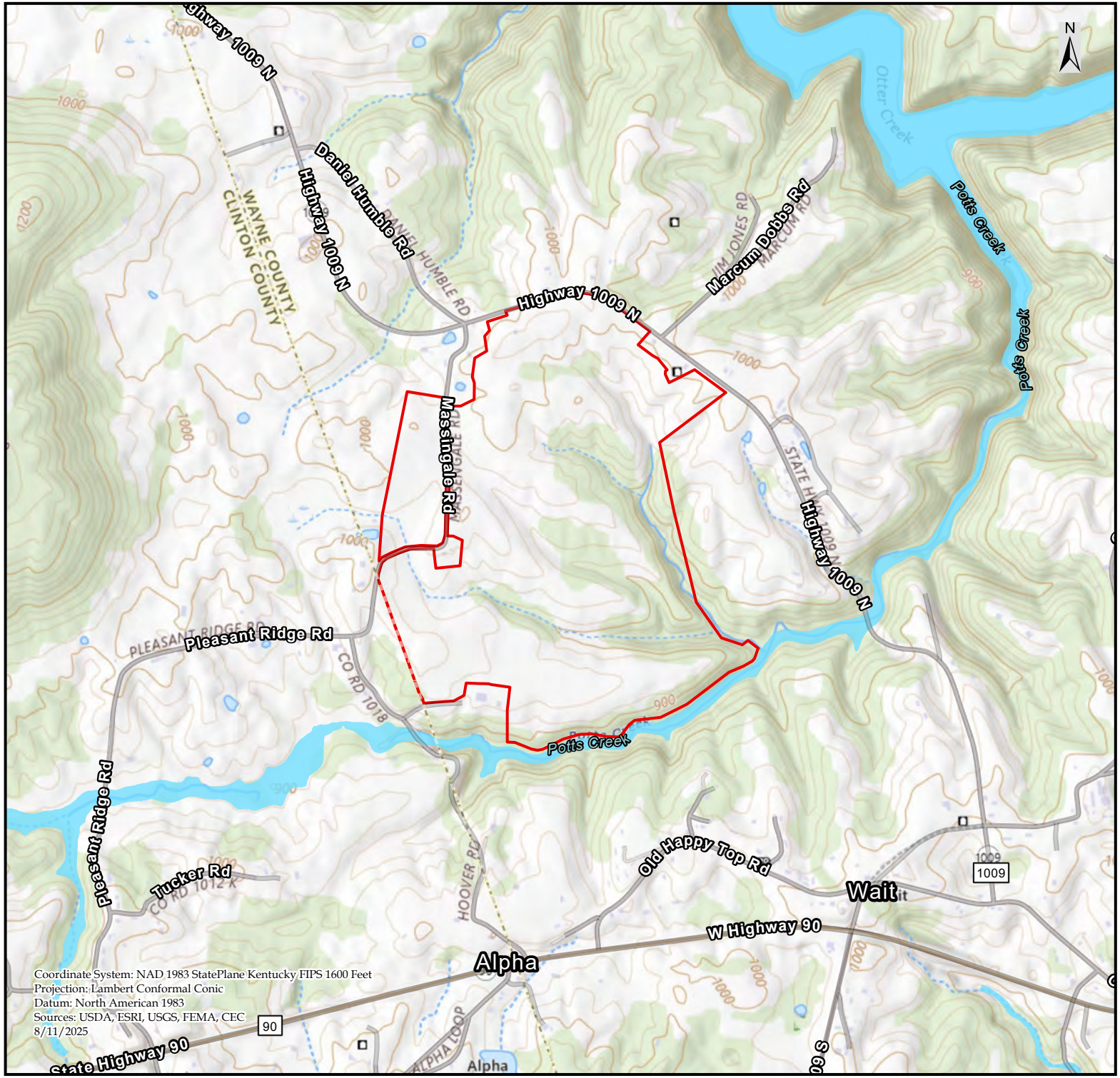

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ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 4:
FEMA National Flood Hazard Layer
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

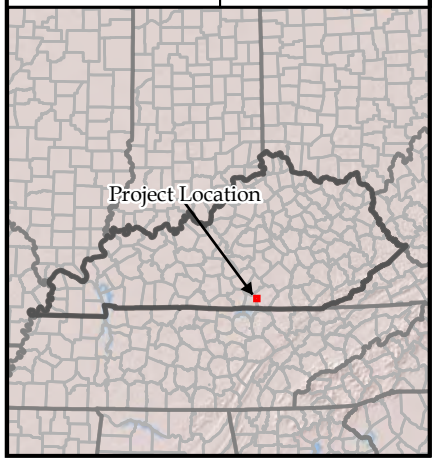
- 1% Annual Chance Flood Hazard
- Project Boundary

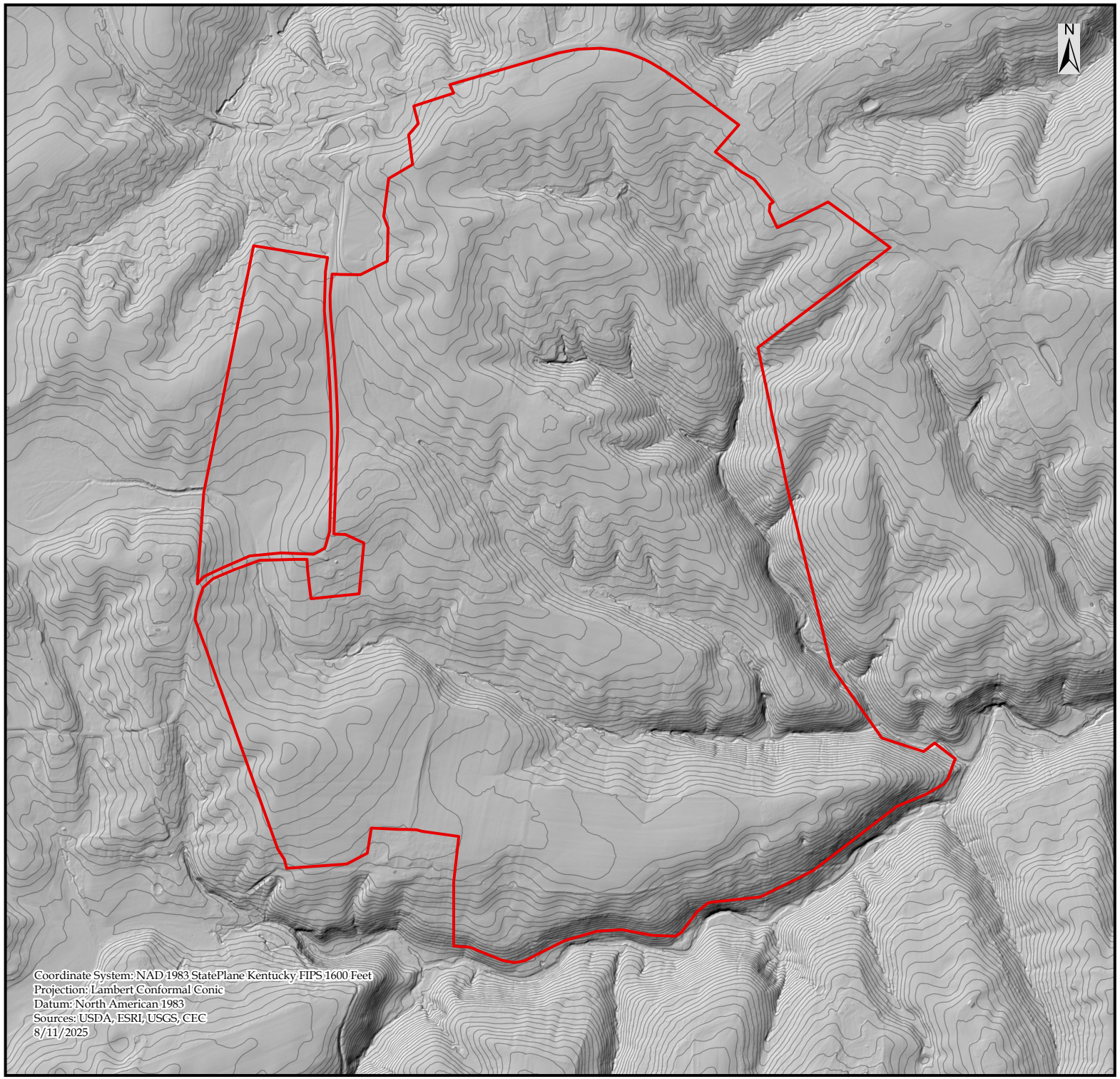
0 1,500 3,000
US Feet

Scale: 1 in = 1,500 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03





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ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 5:
Digital Elevation Model
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

Project Boundary

0 750 1,500
US Feet

Scale: 1 in = 750 ft

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Copperhead Environmental Consulting, Inc.
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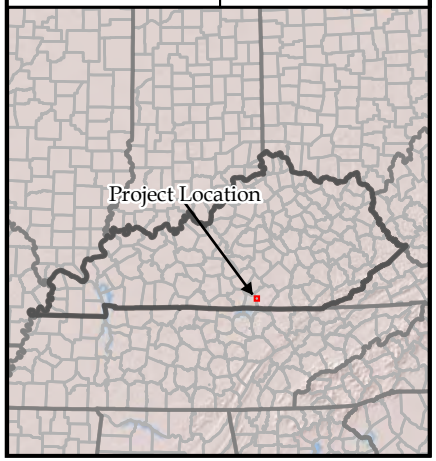
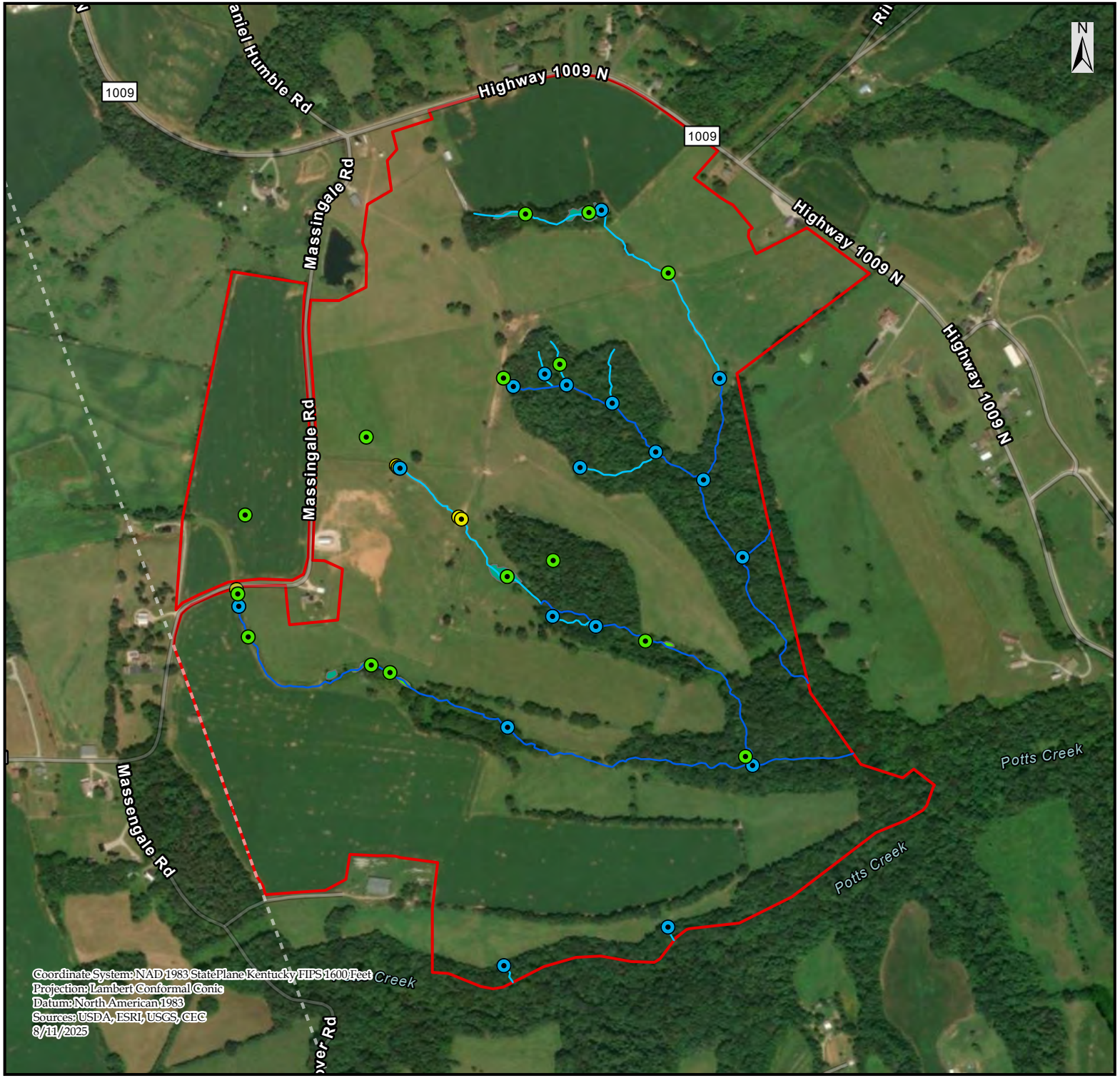
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03





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Prepared for:

Barrelhead Solar, LLC

FIGURE 6:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Isolated Wetland
- Jurisdictional Wetland
- Project Boundary

0 750 1,500
US Feet

Scale: 1 in = 750 ft

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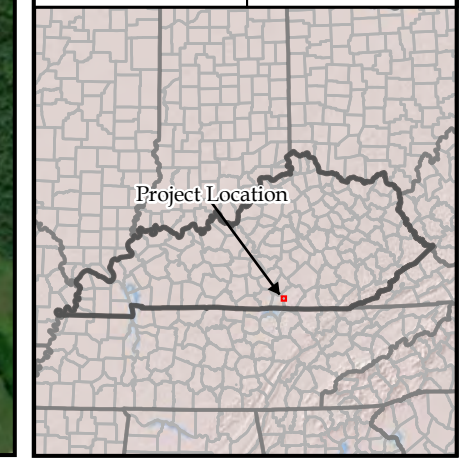
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03



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Prepared for:

Barrelhead Solar, LLC

FIGURE 6.1:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

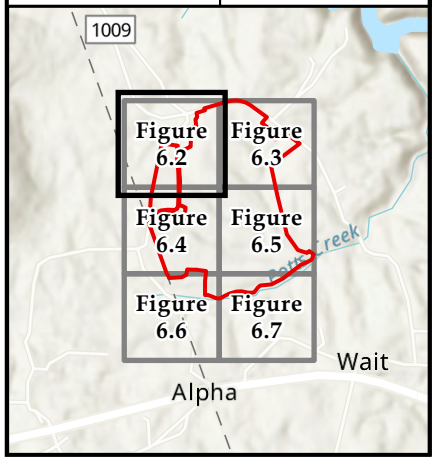
- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Isolated Wetland
- Project Boundary

0 300 600
US Feet

Scale: 1 in = 333 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03



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Prepared for:

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FIGURE 6.2:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

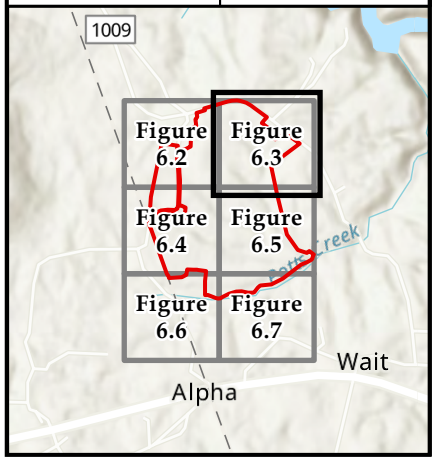
- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Isolated Wetland
- Project Boundary

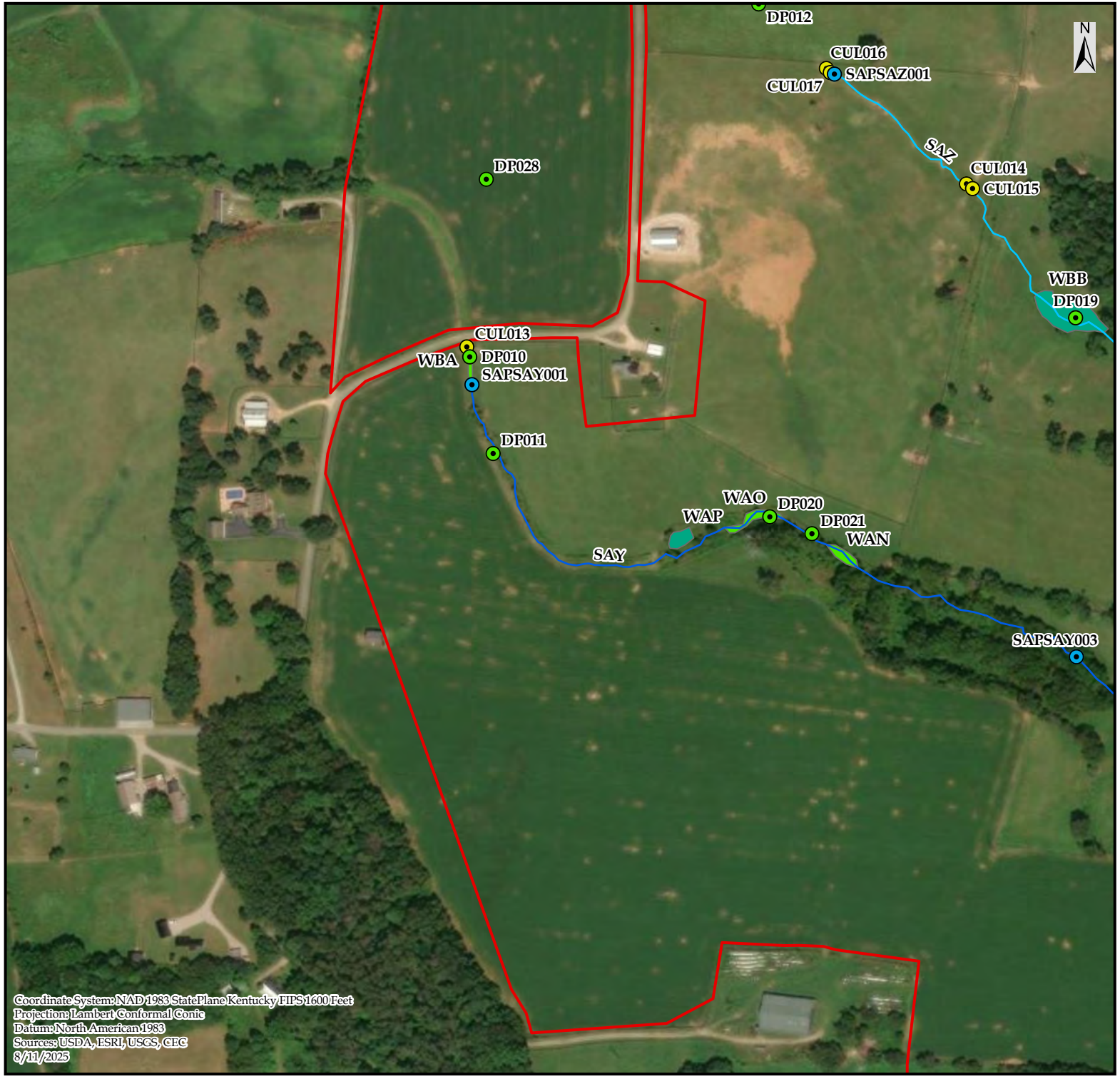
0 300 600
US Feet

Scale: 1 in = 333 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03





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ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 6.3:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

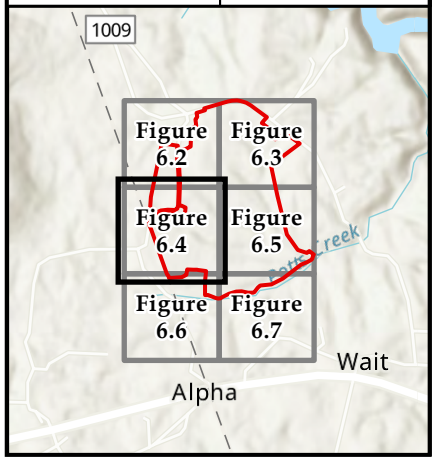
- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Isolated Wetland
- Jurisdictional Wetland
- Project Boundary

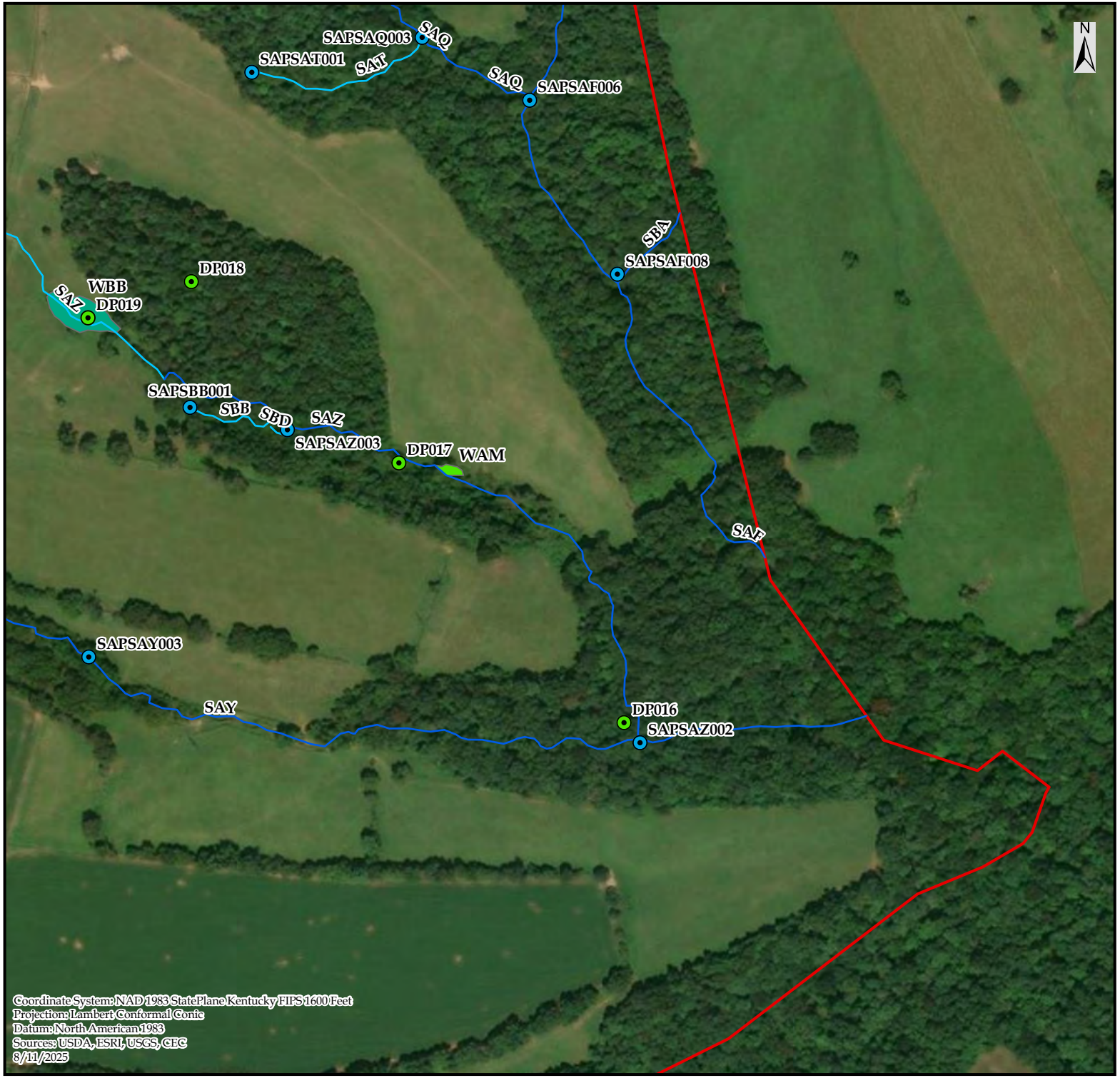
0 300 600
US Feet

Scale: 1 in = 333 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03





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ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 6.4:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

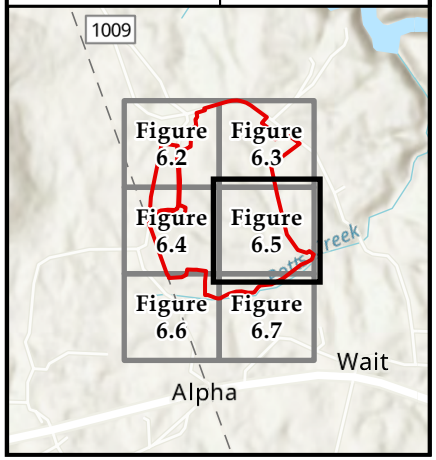
- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Isolated Wetland
- Jurisdictional Wetland
- Project Boundary

0 300 600
US Feet

Scale: 1 in = 333 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03



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Prepared for:

Barrelhead Solar, LLC

FIGURE 6.5:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

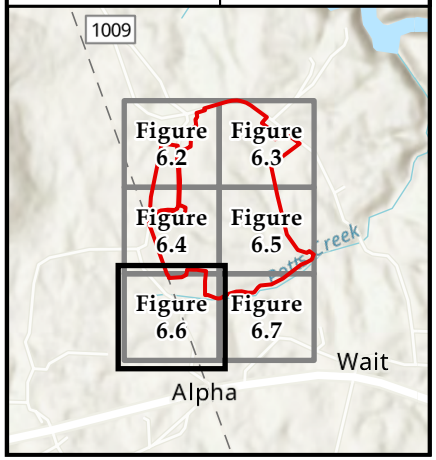
- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Project Boundary

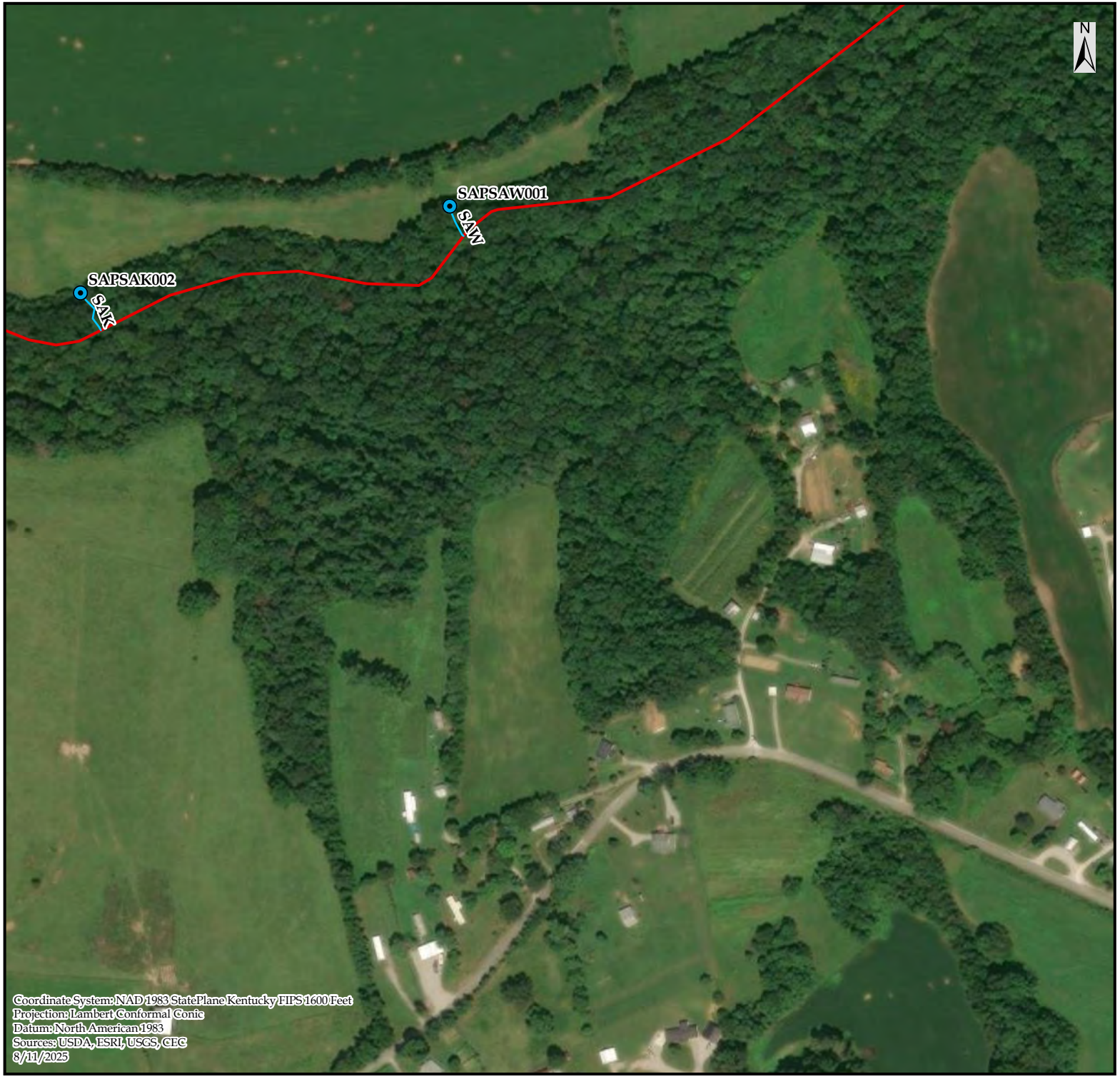
0 300 600
US Feet

Scale: 1 in = 333 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03





COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 6.6:
Wetland Delineation Overview
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

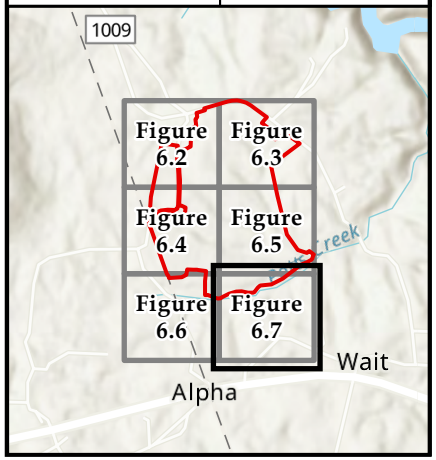
- Culvert
- Stream Assessment Point
- Wetland Data Point
- Ephemeral Stream
- Jurisdictional Stream
- Project Boundary

0 300 600
US Feet

Scale: 1 in = 333 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	8/11/2025
Checked by:	KR	Revision:	03



United States Department of Agriculture

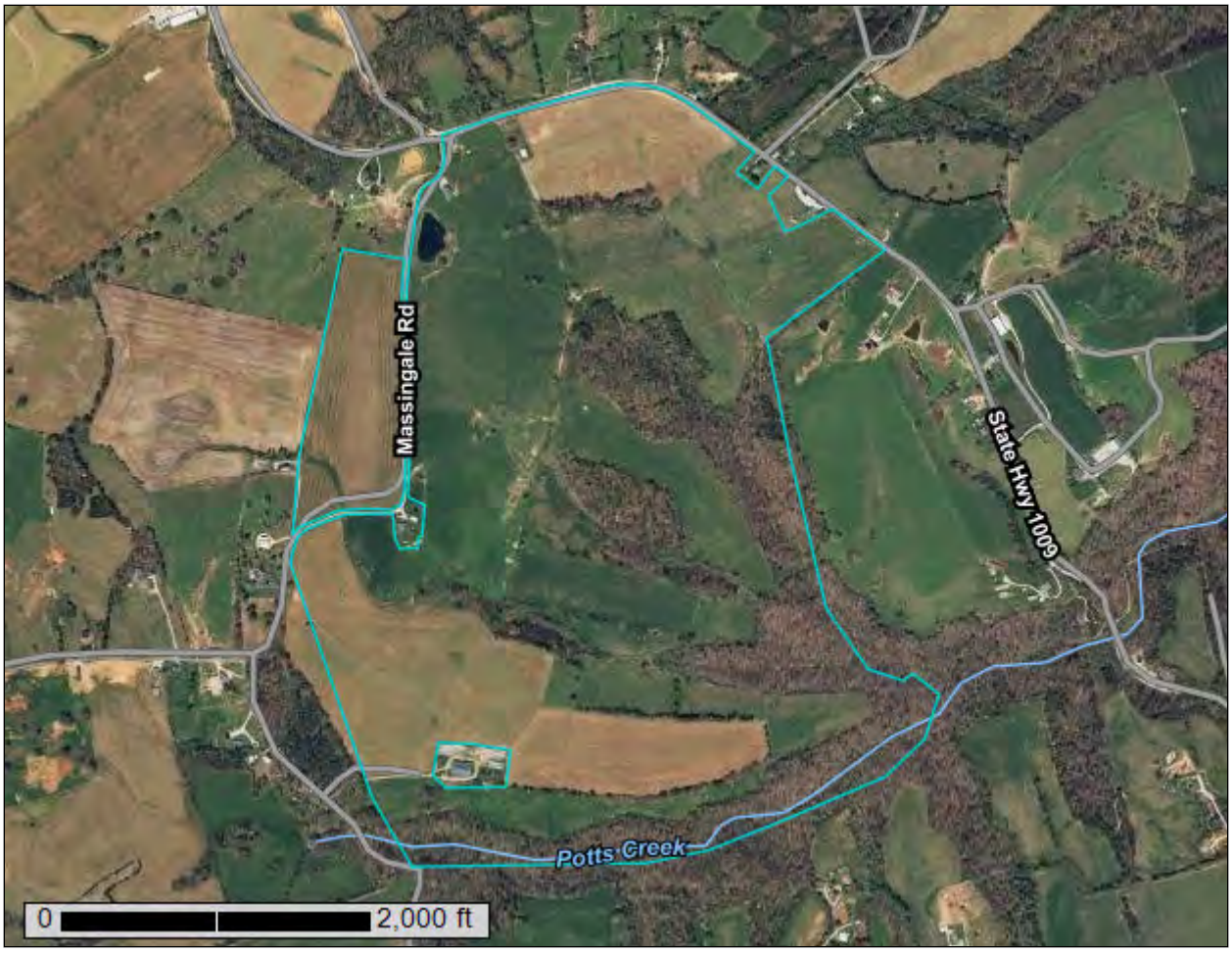
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Wayne County, Kentucky

Barrelhead Solar, LLC



April 21, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

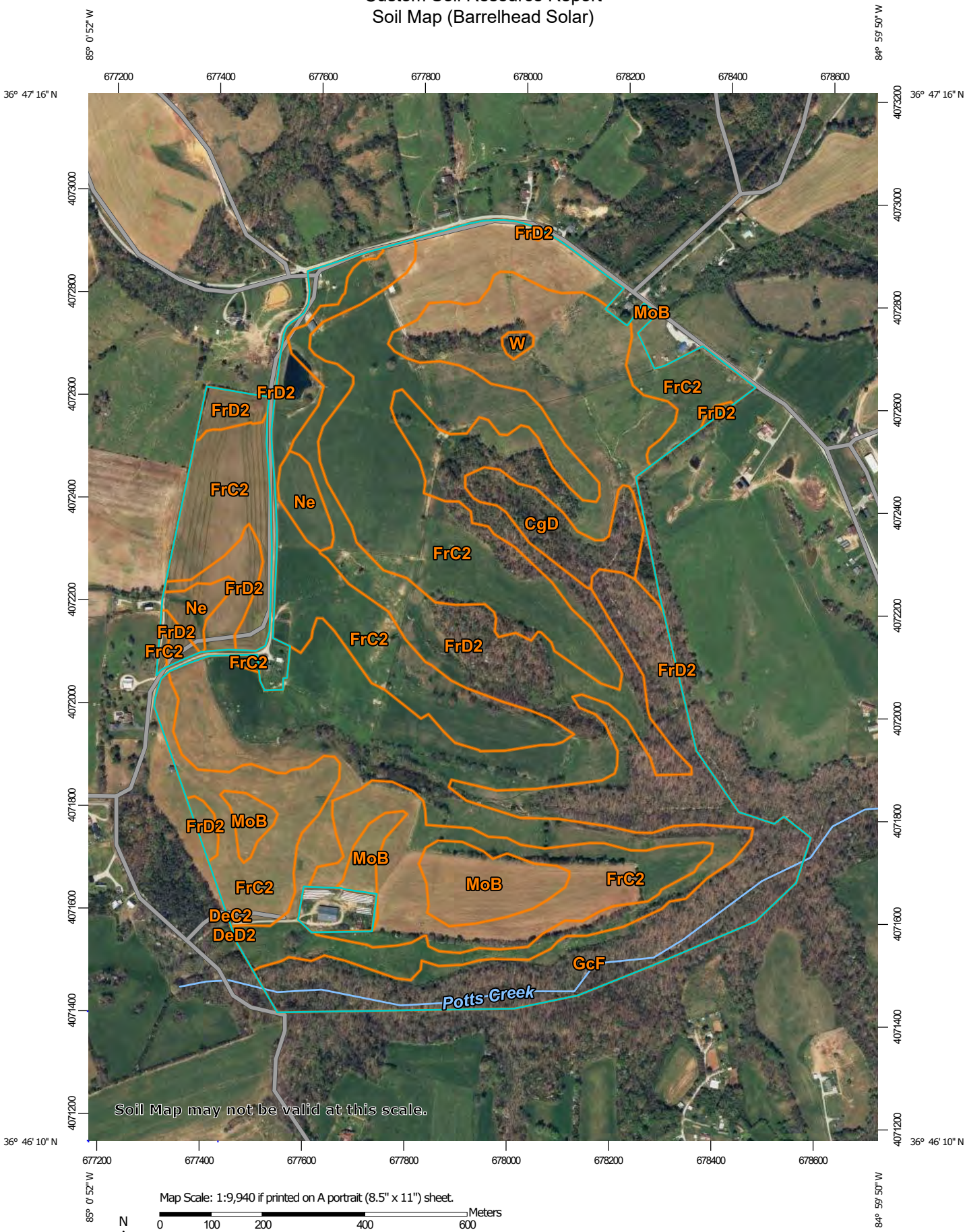
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


85° 0' 52" W
84° 59' 50" W
36° 47' 16" N
36° 46' 10" N
677200
677400
677600
677800
678000
678200
678400
678600
4073200
4073000
4072800
4072600
4072400
4072200
4072000
4071800
4071600
4071400
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FrD2
FrD2
FrC2
Ne
CgD
FrC2
FrD2
Ne
FrD2
FrC2
FrC2
FrC2
FrD2
FrD2
FrD2
MoB
MoB
MoB
FrC2
FrC2
DeC2
DeD2
GcF
Potts Creek
Soil Map may not be valid at this scale.
Map Scale: 1:9,940 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0
100
200
400
600
Feet
0
450
900
1800
2700
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Wayne County, Kentucky
Survey Area Data: Version 21, Aug 30, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

MAP LEGEND

MAP INFORMATION

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2021—Oct 1, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Barrelhead Solar)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DeC2	Dewey loam, 6 to 15 percent slopes, eroded	0.0	0.0%
DeD2	Dewey loam, 15 to 25 percent slopes, eroded	0.0	0.0%
Subtotals for Soil Survey Area		**0.0**	**0.0%**
Totals for Area of Interest		**337.0**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CgD	Caneyville-Garmon association, steep	8.2	2.4%
FrC2	Frederick silt loam, 6 to 12 percent slopes, eroded	132.6	39.3%
FrD2	Frederick silt loam, 12 to 20 percent slopes, eroded	130.2	38.6%
GcF	Garmon-Caneyville association, very steep	47.8	14.2%
MoB	Mountview silt loam, 2 to 6 percent slopes	12.4	3.7%
Ne	Newark silt loam, occasionally flooded	5.4	1.6%
W	Water	0.6	0.2%
Subtotals for Soil Survey Area		**337.0**	**100.0%**
Totals for Area of Interest		**337.0**	**100.0%**

Map Unit Descriptions (Barrelhead Solar)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without

including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Wayne County, Kentucky

CgD—Caneyville-Garmon association, steep

Map Unit Setting

National map unit symbol: lgcz
Elevation: 720 to 1,780 feet
Mean annual precipitation: 44 to 56 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Caneyville and similar soils: 65 percent
Garmon and similar soils: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Caneyville

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 18 inches: silty clay loam
H3 - 18 to 30 inches: silty clay
R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 12 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F122XY005KY - Moderately Deep Well Drained Uplands
Hydric soil rating: No

Description of Garmon

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from limestone and siltstone and/or calcareous shale

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 32 inches: channery silt loam
R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 12 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F122XY005KY - Moderately Deep Well Drained Uplands
Hydric soil rating: No

Minor Components

Frederick

Percent of map unit: 9 percent
Hydric soil rating: No

Waynesboro

Percent of map unit: 9 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

FrC2—Frederick silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2v5b5
Elevation: 500 to 1,150 feet
Mean annual precipitation: 42 to 60 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 224 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Frederick and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frederick

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from limestone and sandstone

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 65 inches: clay

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F122XY001KY - Deep Well Drained Cherty Uplands
Hydric soil rating: No

Minor Components

Pricetown

Percent of map unit: 7 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Frankstown

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Concave
Hydric soil rating: No

Canmer

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Caneyville

Percent of map unit: 1 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

FrD2—Frederick silt loam, 12 to 20 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2v5b8
Elevation: 500 to 1,170 feet
Mean annual precipitation: 42 to 60 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 224 days
Farmland classification: Not prime farmland

Map Unit Composition

Frederick and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frederick

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from limestone and sandstone

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 65 inches: clay

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F122XY001KY - Deep Well Drained Cherty Uplands
Hydric soil rating: No

Minor Components

Caneyville

Percent of map unit: 7 percent
Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Frankstown

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Concave
Hydric soil rating: No

Canmer

Percent of map unit: 3 percent

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

GcF—Garmon-Caneyville association, very steep

Map Unit Setting

National map unit symbol: lgdb
Elevation: 710 to 1,780 feet
Mean annual precipitation: 44 to 56 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Garmon and similar soils: 60 percent
Caneyville and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Garmon

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from limestone and siltstone and/or calcareous shale

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 32 inches: channery silt loam
R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F122XY005KY - Moderately Deep Well Drained Uplands
Hydric soil rating: No

Description of Caneyville

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 18 inches: silty clay loam
H3 - 18 to 30 inches: silty clay
R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F122XY005KY - Moderately Deep Well Drained Uplands
Hydric soil rating: No

Minor Components

Frederick

Percent of map unit: 5 percent
Hydric soil rating: No

Waynesboro

Percent of map unit: 4 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

Shallow clayey soils

Percent of map unit: 2 percent

Hydric soil rating: No

Shallow loamy soils

Percent of map unit: 2 percent
Hydric soil rating: No

MoB—Mountview silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: lgdf
Elevation: 720 to 1,780 feet
Mean annual precipitation: 44 to 56 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 192 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Mountview and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mountview

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Fine-silty noncalcareous loess over clayey residuum weathered from cherty limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 29 inches: silt loam
H3 - 29 to 66 inches: silty clay

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F122XY023TN - Loess Veneered Thermic Uplands
Hydric soil rating: No

Minor Components

Frederick

Percent of map unit: 3 percent
Hydric soil rating: No

Waynesboro

Percent of map unit: 3 percent
Hydric soil rating: No

Dickson

Percent of map unit: 2 percent
Hydric soil rating: No

Mountview, mod deep

Percent of map unit: 2 percent
Hydric soil rating: No

Ne—Newark silt loam, occasionally flooded

Map Unit Setting

National map unit symbol: lgdh
Elevation: 720 to 1,780 feet
Mean annual precipitation: 44 to 56 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 192 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Newark, occasionally flooded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newark, Occasionally Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed fine-silty alluvium

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 38 inches: silt loam

H3 - 38 to 62 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F122XY017KY - Moist Alluvium
Hydric soil rating: No

Minor Components

Nolin

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: No

Melvin, frequently flooded

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

W—Water

Map Unit Setting

National map unit symbol: lgds
Mean annual precipitation: 44 to 56 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 155 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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COPPERHEAD
ENVIRONMENTAL CONSULTING

Appendix B

Representative Stream and Wetland Photographs

Photo Number: 1

8/17/2024

Description:
Overview of upland data point DP001, facing south.

Photo Number: 2

8/17/2024

Description:
Overview of data point DP004, located in palustrine forested (PFO) wetland WAH, facing east.

Photo Number: 3

8/17/2024

Description:
Overview of upland data point DP005, facing east.

Photo Number: 4

8/19/2024

Description:
Overview of data point DP007, located in PFO wetland WAJ, facing west.

Photo Number: 5

8/19/2024

Description:
Overview of upland data point DP008, facing west.

Photo Number: 6

8/19/2024

Description:
Overview of upland data point DP009, facing north.

Photo Number: 7

8/19/2024

Description:
Overview of data point DP010, located in PEM wetland WBA, facing north.

Photo Number: 8

8/19/2024

Description:
Overview of upland data point DP011, facing east.

Photo Number: 9

8/19/2024

Description:
Overview of upland data point DP012, facing north.

Photo Number: 10

8/20/2024

Description:
Overview of upland data point DP013, facing south.

Photo Number: 11

8/20/2024

Description:
Overview of upland data point DP014, facing north.

Photo Number: 12

8/20/2024

Description:
Overview of data point DP015, located in PEM wetland WAE, facing south.

Photo Number: 13

8/20/2024

Description:
Overview of upland data point DP016, facing east.

Photo Number: 14

8/20/2024

Description:
Overview of upland data point DP017, facing west.

Photo Number: 15

8/20/2024

Description:
Overview of upland data point DP018, facing east.

Photo Number: 16

8/20/2024

Description:
Overview of data point DP019, located in PFO wetland WBB, facing west.

Photo Number: 17

8/20/2024

Description:
Overview of data point DP020, located in PEM wetland WAO, facing north.

Photo Number: 18

8/20/2024

Description:
Overview of upland data point DP021, facing west.

Photo Number: 19

8/19/2024

Description:
Overview of upland data point DP022, facing south.

Photo Number: 20

9/30/2024

Description:
Overview of upland data point DP028, facing west.

Photo Number: 21

9/30/2024

Description:
Overview of upland data point DP030, facing west.

Photo Number: 22

9/30/2024

Description:
Overview of upland data point DP033, facing east.

Photo Number: 23

9/30/2024

Description:
Overview of upland data point DP034, facing south.

Photo Number: 24

8/17/2024

Description:
Overview of the ephemeral portion of SAF at stream assessment point (SAP) SAF001, facing west (towards PFO wetland WAH).

Photo Number: 25

8/20/2024

Description:
Overview of SAF at SAPSAF005, facing south. The flow regime transitions from ephemeral to intermittent at this point.

Photo Number: 26

8/20/2024

Description:
Overview of the intermittent portion of SAF at SAPSAF007, facing northwest (upstream).

Photo Number: 27

8/19/2024

Description:
Another overview of the intermittent portion of SAF at SAPSAF007, facing southeast (downstream).

Photo Number: 28

8/19/2024

Description:
Overview of intermittent stream SAJ at SAPSAJ001, facing south (downstream).

Photo Number: 29

8/19/2024

Description:
Overview of ephemeral SAK at SAPSAK002, facing northwest (upstream).

Photo Number: 30

8/20/2024

Description:
Another overview of SAK at SAPSAK002, facing southeast (downstream).

Photo Number: 31

8/19/2024

Description:
Overview of the confluence of SAK and perennial stream SAU at SAPSAK001, facing north.

Photo Number: 32

8/17/2024

Description:
Another overview of the confluence of SAK and SAU at SAPSAK001, facing south.

Photo Number: 33

8/19/2024

Description:
Overview of the confluence of SAU and intermittent stream SAL at SAPSAL001, facing north.

Photo Number: 34

8/20/2024

Description:
Overview of the confluence of SAU and intermittent stream SAM at SAPSAM001, facing south.

Photo Number: 35

8/20/2024

Description:
Overview of the confluence of SAU and intermittent stream SAN at SAPSAN001, facing southeast.

Photo Number: 36

8/19/2024

Description:
Overview of ephemeral SAO at SAPSAO001, facing south (upstream).

Photo Number: 37

8/19/2024

Description:
Another overview of SAO at SAPSAO001, facing north (downstream).

Photo Number: 38

8/20/2024

Description:
Overview of the confluence of ephemeral SAP and intermittent stream SAQ at SAPSAP002, facing north.

Photo Number: 39

8/20/2024

Description:
Another overview of the confluence of SAP and SAQ at SAPSAP002, facing southeast.

Photo Number: 40

8/20/2024

Description:
Overview of SAQ at SAPSAQ002, facing northwest (upstream). The flow regime transitions from ephemeral to intermittent below the headcut.

Photo Number: 41

8/20/2024

Description:
Another overview of SAQ at SAPSAQ002, facing southeast (downstream). The flow regime transitions from ephemeral to intermittent at this point.

Photo Number: 42

8/20/2024

Description:
Overview of the confluence of SAQ and ephemeral SAR at SAPSAR002, facing north.

Photo Number: 43

8/20/2024

Description:
Another overview of the confluence of SAQ and SAR at SAPSAR002, facing south.

Photo Number: 44

8/20/2024

Description:
Overview of ephemeral SAS at SAPSAS002, facing north (upstream).

Photo Number: 45

8/21/2024

Description:
Another overview of SAS at SAPSAS002, facing south (downstream).

Photo Number: 46

8/19/2024

Description:
Overview of ephemeral SAT at SAPSAT001, facing west (upstream).

Photo Number: 47

8/20/2024

Description:
Another overview of SAT at SAPSAT001, facing east (downstream).

Photo Number: 48

8/20/2024

Description:
Overview of perennial stream SAU at SAPSAU001, facing east (downstream).

Photo Number: 49

8/20/2024

Description:
Overview of SAU at SAPSAU003, facing east (towards PFO wetland WAJ).

Photo Number: 50

8/19/2024

Description:
Overview of SAU at SAPSAU008, facing east (downstream).

Photo Number: 51

8/19/2024

Description:
Overview of SAU at SAPSAU010, facing west (upstream).

Photo Number: 52

8/19/2024

Description:
Another overview of SAU at SAPSAU010, facing east (downstream).

Photo Number: 53

8/19/2024

Description:
Overview of ephemeral SAV at SAPSAV001, facing northeast (upstream).

Photo Number: 54

8/19/2024

Description:
Another overview of SAV at SAPSAV001, facing southwest (downstream).

Photo Number: 55

8/19/2024

Description:
Overview of SAV at SAPSAV002, facing northeast (upstream).

Photo Number: 56

8/19/2024

Description:
Another overview of SAV at SAPSAV002, facing southwest (downstream).

Photo Number: 57

8/19/2024

Description:
Overview of intermittent stream SAX at SAPSAX001, facing south (upstream).

Photo Number: 58

8/19/2024

Description:
Another overview of SAX at SAPSAX001, facing north (downstream).

Photo Number: 59

8/19/2024

Description:
Overview of SAY at SAPSAY003, facing north (upstream). The flow regime transitions from ephemeral to intermittent where the groundwater emerges from the bedrock fissures.

Photo Number: 60

8/19/2024

Description:
Another overview of SAY at SAPSAY003, facing south (downstream).

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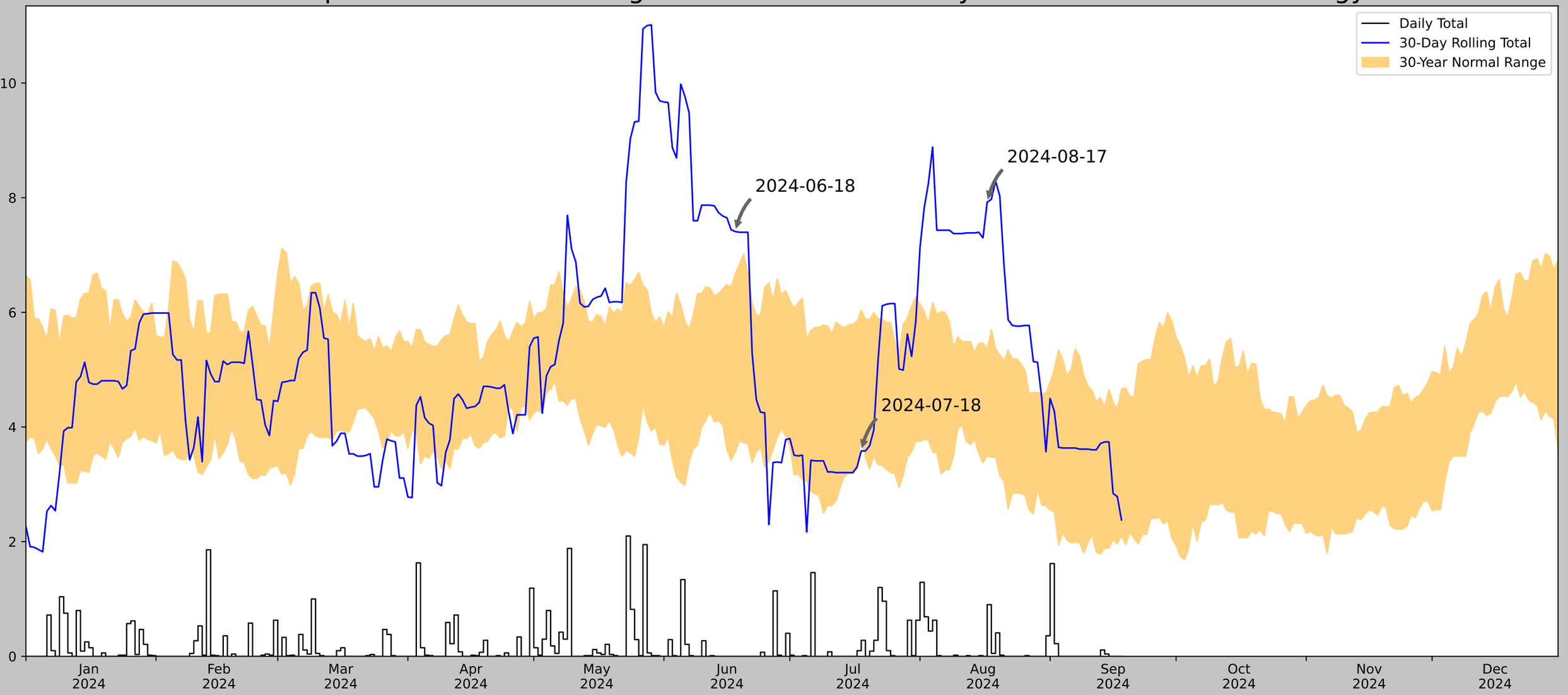
Appendix C

Antecedent Precipitation Table

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.775937, -85.011720
Observation Date	2024-08-17
Elevation (ft)	969.985
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

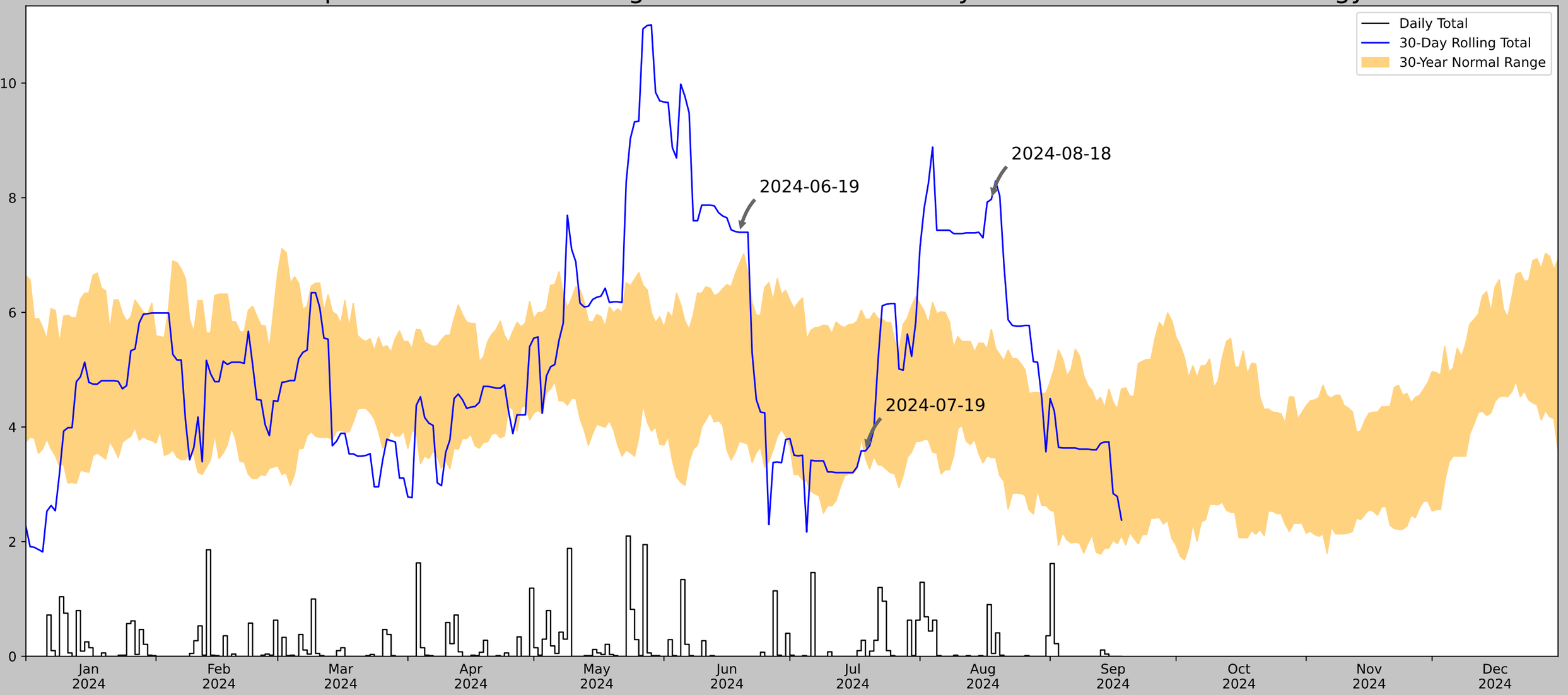
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-08-17	3.494882	5.362205	7.92126	Wet	3	3	9
2024-07-18	3.829528	6.038977	3.582677	Dry	1	2	2
2024-06-18	3.562205	6.672441	7.409449	Wet	3	1	3
Result							Normal Conditions - 14

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
JAMESTOWN WWTP	37.0056, -85.0617	890.092	16.107	79.893	8.535	10376	90
JAMESTOWN 9.0 SSW	36.8799, -85.1505	678.15	9.974	211.942	6.602	1	0
MONTICELLO 9.1 W	36.8198, -85.0107	965.879	13.143	75.787	6.91	151	0
COLUMBIA STATE POLICE	37.0897, -85.3045	845.144	14.596	44.948	7.224	814	0
WINDSOR 1.2 NW	37.1338, -84.9333	1109.908	11.339	219.816	7.595	1	0
WINDSOR 0.8 NW	37.1364, -84.9214	1142.06	11.895	251.968	8.35	1	0
BYRDSTOWN	36.5808, -85.1258	879.921	29.564	10.171	13.604	8	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.775937, -85.011720
Observation Date	2024-08-18
Elevation (ft)	969.985
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

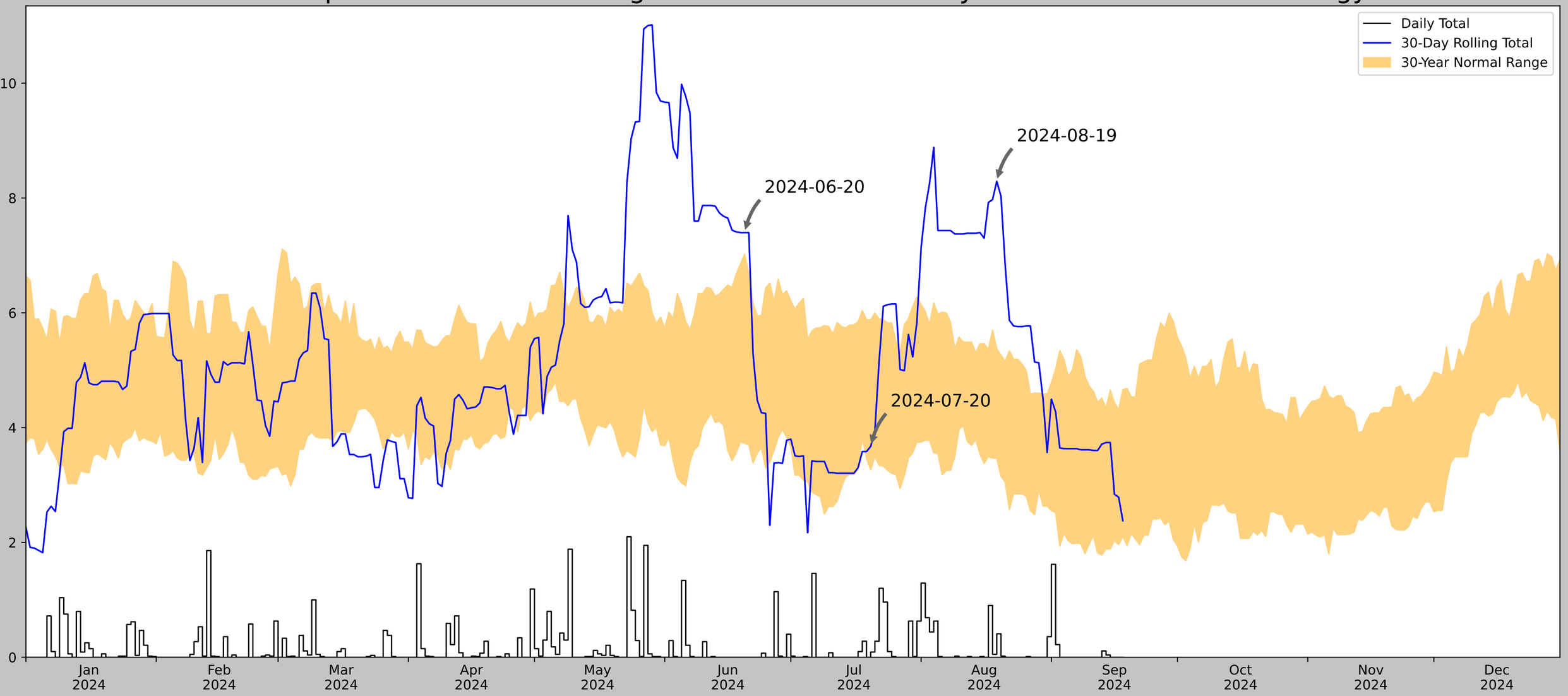
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-08-18	3.468898	5.698819	7.972441	Wet	3	3	9
2024-07-19	3.460236	5.881496	3.582677	Normal	2	2	4
2024-06-19	3.751969	6.848819	7.397638	Wet	3	1	3
Result							Wetter than Normal - 16

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
JAMESTOWN WWTP	37.0056, -85.0617	890.092	16.107	79.893	8.535	10376	90
JAMESTOWN 9.0 SSW	36.8799, -85.1505	678.15	9.974	211.942	6.602	1	0
MONTICELLO 9.1 W	36.8198, -85.0107	965.879	13.143	75.787	6.91	151	0
COLUMBIA STATE POLICE	37.0897, -85.3045	845.144	14.596	44.948	7.224	814	0
WINDSOR 1.2 NW	37.1338, -84.9333	1109.908	11.339	219.816	7.595	1	0
WINDSOR 0.8 NW	37.1364, -84.9214	1142.06	11.895	251.968	8.35	1	0
BYRDSTOWN	36.5808, -85.1258	879.921	29.564	10.171	13.604	8	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.775937, -85.011720
Observation Date	2024-08-19
Elevation (ft)	969.985
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

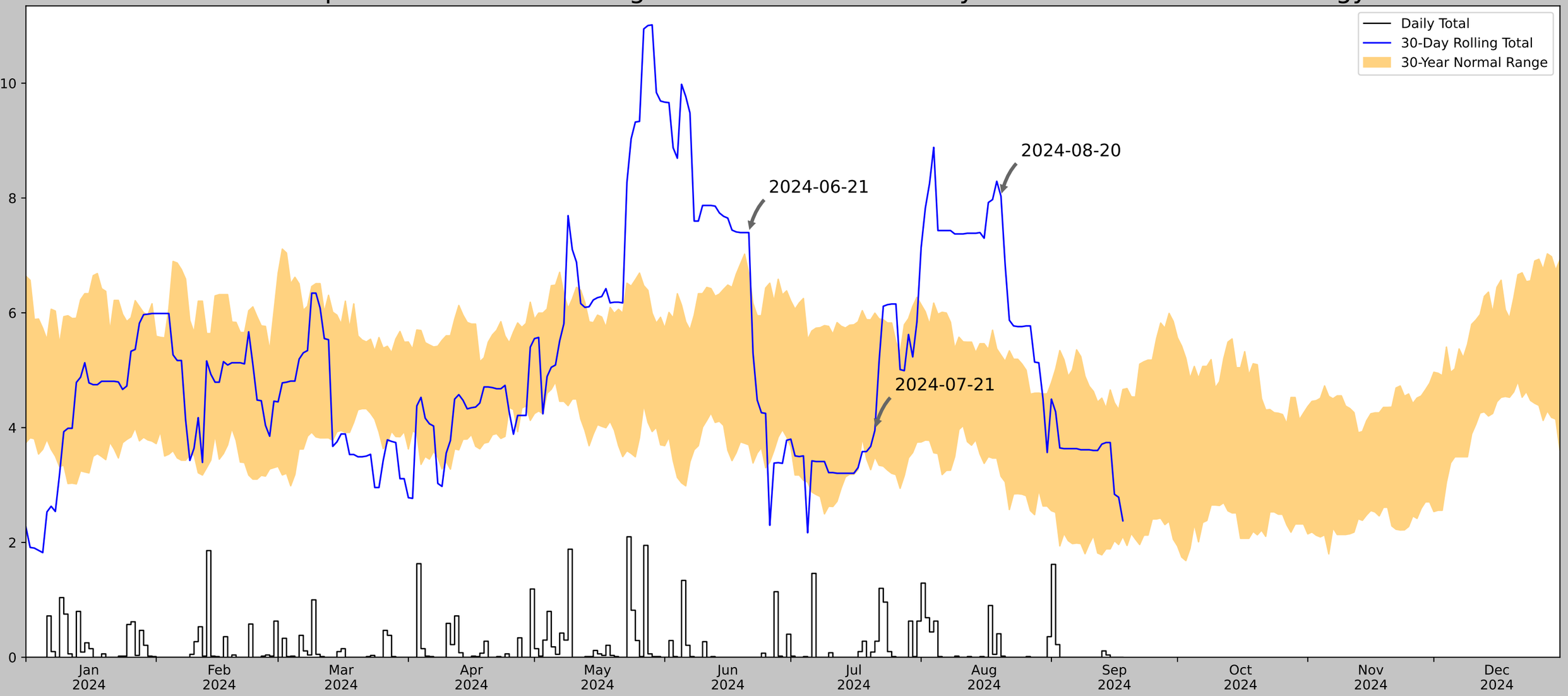
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-08-19	3.468898	5.372835	8.291339	Wet	3	3	9
2024-07-20	3.266536	5.877953	3.673228	Normal	2	2	4
2024-06-20	3.727559	7.022835	7.397638	Wet	3	1	3
Result							Wetter than Normal - 16

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
JAMESTOWN WWTP	37.0056, -85.0617	890.092	16.107	79.893	8.535	10376	90
JAMESTOWN 9.0 SSW	36.8799, -85.1505	678.15	9.974	211.942	6.602	1	0
MONTICELLO 9.1 W	36.8198, -85.0107	965.879	13.143	75.787	6.91	151	0
COLUMBIA STATE POLICE	37.0897, -85.3045	845.144	14.596	44.948	7.224	814	0
WINDSOR 1.2 NW	37.1338, -84.9333	1109.908	11.339	219.816	7.595	1	0
WINDSOR 0.8 NW	37.1364, -84.9214	1142.06	11.895	251.968	8.35	1	0
BYRDSTOWN	36.5808, -85.1258	879.921	29.564	10.171	13.604	8	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.775937, -85.011720
Observation Date	2024-08-20
Elevation (ft)	969.985
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-08-20	3.151969	5.262599	8.031496	Wet	3	3	9
2024-07-21	3.492126	5.995276	3.952756	Normal	2	2	4
2024-06-21	3.7	6.690945	7.397638	Wet	3	1	3
Result							Wetter than Normal - 16

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
JAMESTOWN WWTP	37.0056, -85.0617	890.092	16.107	79.893	8.535	10376	90
JAMESTOWN 9.0 SSW	36.8799, -85.1505	678.15	9.974	211.942	6.602	1	0
MONTICELLO 9.1 W	36.8198, -85.0107	965.879	13.143	75.787	6.91	151	0
COLUMBIA STATE POLICE	37.0897, -85.3045	845.144	14.596	44.948	7.224	814	0
WINDSOR 1.2 NW	37.1338, -84.9333	1109.908	11.339	219.816	7.595	1	0
WINDSOR 0.8 NW	37.1364, -84.9214	1142.06	11.895	251.968	8.35	1	0
BYRDSTOWN	36.5808, -85.1258	879.921	29.564	10.171	13.604	8	0

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Appendix D

Field Data Forms

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-17

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP001

Investigator(s): D. Hunter Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.771805 Long: -84.991206 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP001

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus rubra	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5.0 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Schedonorus arundinaceus	63	Y	FACU
2. Vernonia gigantea	15	N	FAC
3. Xanthium strumarium	3	N	FAC
4. Solanum carolinense	3	N	FACU
5. Rumex crispus	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	87.0 = Total Cover		
50% of total cover: 43.5	20% of total cover: 17.4		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	26	x 3 =	78
FACU species	66	x 4 =	264
UPL species	0	x 5 =	0
Column Totals:	92 (A)		342.00 (B)

Prevalence Index = B/A = 3.72

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	98	10YR 4/6	2	C	M	SL	
8-12	10YR 4/3	85	5YR 4/6	15	C	M	SL	Redox features appear relict

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-17

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP002

Investigator(s): D. Hunter, L. Blackmore Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.771805 Long: -84.991206 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 1
Water Table Present?	Yes ✓	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP002

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	38	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	38.0 = Total Cover		
50% of total cover: 19.0	20% of total cover: 7.6		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Echinochloa crus-pavonis	63	Y	FACW
2. Persicaria pensylvanica	15	N	FACW
3. Sagittaria latifolia	15	N	OBL
4. Eleocharis obtusa	3	N	OBL
5. Cyperus strigosus	3	N	FACW
6. Juncus effusus	3	N	FACW
7. Ludwigia alternifolia	3	N	FACW
8. Carex vulpinoidea	3	N	OBL
9.			
10.			
11.			
	108.0 = Total Cover		
50% of total cover: 54.0	20% of total cover: 21.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	59	x 1 =	59
FACW species	87	x 2 =	174
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	146 (A)		233.00 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Indicator 1 (Rapid Test) present with all dominant species FACW or OBL; parameter met. Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	80	7.5YR 4/6	20	C	M	SCL	
8-12	10YR 4/1	92	7.5YR 6/8	8	C		SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-17

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP004

Investigator(s): D. Hunter, L. Blackmore Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.783669 Long: -85.005508 Datum: WGS84

Soil Map Unit Name: Water NWI classification: PUBHh

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP004

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	38	Y	OBL
2. Platanus occidentalis	15	Y	FACW
3. Ulmus rubra	15	Y	FAC
4.			
5.			
6.			
7.			
	68.0 = Total Cover		
50% of total cover: 34.0	20% of total cover: 13.6		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	85	Y	FAC
2. Persicaria hydropiperoides	15	N	OBL
3. Lycopus americanus	15	N	OBL
4. Solidago canadensis	15	N	FACU
5. Mimulus alatus	3	N	OBL
6. Carex lupulina	3	N	OBL
7. Lobelia cardinalis	3	N	FACW
8. Boehmeria cylindrica	3	N	FACW
9.			
10.			
11.			
	142.0 = Total Cover		
50% of total cover: 71.0	20% of total cover: 28.4		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	74	x 1 =	74
FACW species	21	x 2 =	42
FAC species	100	x 3 =	300
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	210 (A)		476.00 (B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP004

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100			C	M	SICL	
2-18	10YR 5/2	85	7.5YR 6/8	15	C	M/PL	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-17

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP005

Investigator(s): D. Hunter, L. Blackmore Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.785773 Long: -85.006149 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 6 to 12 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP005

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharum	38	Y	FACU
2. Acer nigrum	38	Y	FACU
3. Carya glabra	38	Y	FACU
4.			
5.			
6.			
7.			
	114.0 = Total Cover		
50% of total cover: 57.0	20% of total cover: 22.8		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Acer saccharum	15	Y	FACU
2. Lindera benzoin	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30.0 = Total Cover		
50% of total cover: 15.0	20% of total cover: 6.0		
Herb Stratum (Plot size: 5' Radius)			
1. Persicaria virginiana	15	Y	FAC
2. Verbesina alternifolia	3	N	FAC
3. Sanicula canadensis	3	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	21.0 = Total Cover		
50% of total cover: 10.5	20% of total cover: 4.2		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Smilax rotundifolia	38	Y	FAC
2. Parthenocissus quinquefolia	15	Y	FACU
3. Lonicera japonica	15	Y	FACU
4.			
5.			
	68.0 = Total Cover		
50% of total cover: 34.0	20% of total cover: 13.6		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	71	x 3 =	213
FACU species	159	x 4 =	636
UPL species	3	x 5 =	15
Column Totals:	233 (A)		864.00 (B)

Prevalence Index = B/A = 3.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP005

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 6/3	100					SL	
6-10	10YR 5/4	100					SL	
10-18	10YR 7/3	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP007

Investigator(s): I. Bentley, D. Hunter Section, Township, Range:

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.772249 Long: -85.009224 Datum: NAD83

Soil Map Unit Name: Garmon-Caneyville association, very steep NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ✓ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 16
Water Table Present?	Yes ✓	No _____	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP007

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Platanus occidentalis	15	Y	FACW
2. Acer rubrum	15	Y	FAC
3. Liriodendron tulipifera	10	Y	FACU
4. Ulmus rubra	10	Y	FAC
5.			
6.			
7.			
	50.0	= Total Cover	

50% of total cover: 25.0 20% of total cover: 10.0

Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Asimina triloba	40	Y	FAC
2. Alnus	10	Y	
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	50.0	= Total Cover	

50% of total cover: 25.0 20% of total cover: 10.0

Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	15	Y	FAC
2. Impatiens capensis	10	Y	FACW
3. Asimina triloba	8	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	33.0	= Total Cover	

50% of total cover: 16.5 20% of total cover: 6.6

Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	3	Y	FAC
2. Parthenocissus quinquefolia	2	Y	FACU
3. Smilax rotundifolia	2	Y	FAC
4.			
5.			
	7.0	= Total Cover	

50% of total cover: 3.5 20% of total cover: 1.4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	93	x 3 =	279
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	130 (A)		377.00 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL Sampling Point: DP007

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					SIL	
3-18	10YR 5/2	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: KY Sampling Point: DP008

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.772537 Long: -85.002902 Datum: WGS84

Soil Map Unit Name: None NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP008

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	38	Y	FACU
2. Acer rubrum	38	Y	FAC
3. Ulmus rubra	15	N	FAC
4. Asimina triloba	15	N	FAC
5.			
6.			
7.			
	106.0 = Total Cover		
50% of total cover: 53.0	20% of total cover: 21.2		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Asimina triloba	38	Y	FAC
2. Lindera benzoin	38	Y	FAC
3. Fraxinus pennsylvanica	15	N	FACW
4. Carpinus caroliniana	3	N	FAC
5. Hamamelis virginiana	3	N	FACU
6.			
7.			
8.			
9.			
	97.0 = Total Cover		
50% of total cover: 48.5	20% of total cover: 19.4		
Herb Stratum (Plot size: 5' Radius)			
1. Laportea canadensis	63	Y	FAC
2. Polystichum acrostichoides	15	N	FACU
3. Amphicarpaea bracteata	3	N	FAC
4. Heuchera americana	3	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	84.0 = Total Cover		
50% of total cover: 42.0	20% of total cover: 16.8		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	38	Y	FAC
2.			
3.			
4.			
5.			
	38.0 = Total Cover		
50% of total cover: 19.0	20% of total cover: 7.6		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	251	x 3 =	753
FACU species	59	x 4 =	236
UPL species	0	x 5 =	0
Column Totals:	325 (A)		1019.00 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP008

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					L	
2-12	10YR 4/4	100					FSL	
12-18	10YR 4/3	95	10YR 5/8	5	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter not met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP009

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.772074 Long: -85.008544 Datum: WGS84

Soil Map Unit Name: Garmon-Caneyville association, very steep NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP009

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Morus rubra	38	Y	FACU
2. Juniperus virginiana	38	Y	FACU
3. Quercus alba	15	N	FACU
4. Platanus occidentalis	15	N	FACW
5.			
6.			
7.			
	106.0 = Total Cover		
50% of total cover: 53.0	20% of total cover: 21.2		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Carpinus caroliniana	38	Y	FAC
2. Lindera benzoin	38	Y	FAC
3. Prunus serotina	15	N	FACU
4. Fraxinus pennsylvanica	3	N	FACW
5.			
6.			
7.			
8.			
9.			
	94.0 = Total Cover		
50% of total cover: 47.0	20% of total cover: 18.8		
Herb Stratum (Plot size: 5' Radius)			
1. Persicaria virginiana	15	Y	FAC
2. Microstegium vimineum	15	Y	FAC
3. Agrimonia parviflora	15	Y	FACW
4. Rosa multiflora	15	Y	FACU
5. Sceptridium dissectum	3	N	FAC
6. Vernonia noveboracensis	3	N	FACW
7.			
8.			
9.			
10.			
11.			
	66.0 = Total Cover		
50% of total cover: 33.0	20% of total cover: 13.2		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	38	Y	FAC
2. Smilax rotundifolia	15	Y	FAC
3. Bignonia capreolata	3	N	FAC
4.			
5.			
	56.0 = Total Cover		
50% of total cover: 28.0	20% of total cover: 11.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 70.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	36	x 2 =	72
FAC species	165	x 3 =	495
FACU species	121	x 4 =	484
UPL species	0	x 5 =	0
Column Totals:	322 (A)		1051.00 (B)

Prevalence Index = B/A = 3.26

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP009

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					L	
2-8	10YR 4/4	100					FSL	
8-18	7.5YR 4/6	100					FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter not met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP010

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.777947 Long: -85.012078 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

All parameters met; area is considered a palustrine emergent (PEM) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP010

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Carex frankii	38	Y	OBL
2. Setaria parviflora	15	Y	FAC
3. Paspalum dilatatum	15	Y	FAC
4. Juncus effusus	15	Y	FACW
5. Symphyotrichum racemosum	3	N	FACW
6. Vernonia noveboracensis	3	N	FACW
7. Ludwigia palustris	3	N	OBL
8. Ambrosia artemisiifolia	3	N	FACU
9. Rosa multiflora	3	N	FACU
10.			
11.			
	98.0 = Total Cover		
50% of total cover: 49.0	20% of total cover: 19.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	41	x 1 =	41
FACW species	21	x 2 =	42
FAC species	30	x 3 =	90
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column Totals:	98 (A)		197.00 (B)

Prevalence Index = B/A = 2.01

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP010

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					L	
2-6	10YR 4/3	95	7.5YR 5/8	5	C	M	FSL	
6-18	10YR 4/2	88	10YR 5/8	12	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP011

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.777321 Long: -85.011899 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

Indicators of wetland hydrology absent; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP011

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Rhus copallinum	15	Y	FACU
2. Ulmus rubra	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30.0 = Total Cover		
50% of total cover: 15.0	20% of total cover: 6.0		
Herb Stratum (Plot size: 5' Radius)			
1. Cynodon dactylon	38	Y	FACU
2. Eleusine indica	15	Y	FACU
3. Digitaria ciliaris	15	Y	FAC
4. Solanum carolinense	15	Y	FACU
5. Phytolacca americana	15	Y	FACU
6. Vernonia noveboracensis	15	Y	FACW
7. Rubus pensilvanicus	15	Y	FAC
8. Amaranthus spinosus	3	N	FACU
9. Tridens flavus	3	N	FACU
10. Daucus carota	3	N	UPL
11.			
	137.0 = Total Cover		
50% of total cover: 68.5	20% of total cover: 27.4		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44.44 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	45	x 3 =	135
FACU species	104	x 4 =	416
UPL species	3	x 5 =	15
Column Totals:	167 (A)		596.00 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP011

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					L	
2-18	10YR 4/3	95	7.5YR 5/8	5	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter not met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP012

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.780309 Long: -85.009641 Datum: WGS84

Soil Map Unit Name: Newark silt loam, occasionally flooded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP012

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Schedonorus arundinaceus	85	Y	FACU
2. Paspalum laeve	15	N	FAC
3. Solanum carolinense	15	N	FACU
4. Vernonia noveboracensis	15	N	FACW
5. Persicaria longiseta	3	N	FAC
6. Coleataenia anceps	3	N	FAC
7. Diodia teres	3	N	UPL
8. Acalypha rhomboidea	3	N	FACU
9. Coleataenia anceps	3	N	FAC
10.			
11.			
	145.0 = Total Cover		
50% of total cover: 72.5	20% of total cover: 29.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	24	x 3 =	72
FACU species	103	x 4 =	412
UPL species	3	x 5 =	15
Column Totals:	145 (A)		529.00 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP012

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					L	
2-12	10YR 4/2	95	7.5YR 5/8	5	C	M	FSL	
12-18	10YR 4/1	85	7.5YR 6/8	15	C	M/PL	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: KY Sampling Point: DP013

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.782735 Long: -85.003996 Datum: WGS84

Soil Map Unit Name: Water NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP013

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Eleusine indica	38	Y	FACU
2. Amaranthus spinosus	38	Y	FACU
3. Schedonorus arundinaceus	15	N	FACU
4. Solanum carolinense	13	N	FACU
5. Vernonia noveboracensis	13	N	FACW
6. Ambrosia artemisiifolia	3	N	FACU
7. Trifolium repens	3	N	FACU
8. Xanthium strumarium	3	N	FAC
9. Plantago rugelii	3	N	FACU
10. Rumex crispus	3	N	FAC
11.			
	132.0 = Total Cover		
50% of total cover: 66.0	20% of total cover: 26.4		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	13	x 2 =	26
FAC species	6	x 3 =	18
FACU species	113	x 4 =	452
UPL species	0	x 5 =	0
Column Totals:	132 (A)		496.00 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP013

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/3	100					L	
12-18	10YR 5/3	95	7.5YR 5/8	5	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP014

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.781390 Long: -85.006021 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP014

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	38	Y	FACU
2. Ulmus rubra	15	Y	FAC
3. Nyssa sylvatica	15	Y	FAC
4. Platanus occidentalis	15	Y	FACW
5.			
6.			
7.			
	83.0 = Total Cover		
50% of total cover: 41.5	20% of total cover: 16.6		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Juniperus virginiana	3	Y	FACU
2. Fagus grandifolia	3	Y	FACU
3. Sassafras albidum	3	Y	FACU
4. Lindera benzoin	3	Y	FAC
5.			
6.			
7.			
8.			
9.			
	12.0 = Total Cover		
50% of total cover: 6.0	20% of total cover: 2.4		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	38	Y	FAC
2. Clematis terniflora	38	Y	FACU
3. Ageratina altissima	3	N	FACU
4. Rubus pensilvanicus	3	N	FAC
5. Verbesina alternifolia	3	N	FAC
6. Persicaria virginiana	3	N	FAC
7.			
8.			
9.			
10.			
11.			
	88.0 = Total Cover		
50% of total cover: 44.0	20% of total cover: 17.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	38	Y	FAC
2. Lonicera japonica	15	Y	FACU
3.			
4.			
5.			
	53.0 = Total Cover		
50% of total cover: 26.5	20% of total cover: 10.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	118	x 3 =	354
FACU species	103	x 4 =	412
UPL species	0	x 5 =	0
Column Totals:	236 (A)		796.00 (B)

Prevalence Index = B/A = 3.37

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP014

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 5/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP015

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.781169 Long: -85.007085 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

All parameters met; area is considered a palustrine emergent (PEM) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP015

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Elaeagnus angustifolia	3	Y	FACU
2. Ligustrum vulgare	3	Y	FACU
3. Ulmus rubra	3	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
	9.0 = Total Cover		
50% of total cover: 4.5	20% of total cover: 1.8		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	38	Y	FAC
2. Juncus effusus	38	Y	FACW
3. Rubus pensilvanicus	38	Y	FAC
4. Persicaria hydropiper	15	N	OBL
5. Boehmeria cylindrica	3	N	FACW
6. Solidago altissima	3	N	FACU
7.			
8.			
9.			
10.			
11.			
	135.0 = Total Cover		
50% of total cover: 67.5	20% of total cover: 27.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	41	x 2 =	82
FAC species	79	x 3 =	237
FACU species	9	x 4 =	36
UPL species	0	x 5 =	0
Column Totals:	144 (A)		370.00 (B)

Prevalence Index = B/A = 2.57

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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 ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP015

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					L	
4-8	10YR 5/3	92	7.5YR 4/6	8	C	M	SCL	
8-18	10YR 4/1	88	7.5YR 4/6	12	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP016

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.775439 Long: -85.002599 Datum: WGS84

Soil Map Unit Name: Garmon-Caneyville association, very steep NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP016

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	63	Y	FACU
2. Morus rubra	15	N	FACU
3. Carpinus caroliniana	15	N	FAC
4.			
5.			
6.			
7.			
	93.0 = Total Cover		
50% of total cover: 46.5	20% of total cover: 18.6		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Lindera benzoin	38	Y	FAC
2. Juniperus virginiana	3	N	FACU
3. Acer rubrum	3	N	FAC
4. Carpinus caroliniana	3	N	FAC
5.			
6.			
7.			
8.			
9.			
	47.0 = Total Cover		
50% of total cover: 23.5	20% of total cover: 9.4		
Herb Stratum (Plot size: 5' Radius)			
1. Amphicarpaea bracteata	38	Y	FAC
2. Rubus pensilvanicus	38	Y	FAC
3. Actea racemosa	15	N	UPL
4. Persicaria virginiana	3	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	94.0 = Total Cover		
50% of total cover: 47.0	20% of total cover: 18.8		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	15	Y	FAC
2.			
3.			
4.			
5.			
	15.0 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	153	x 3 =	459
FACU species	81	x 4 =	324
UPL species	15	x 5 =	75
Column Totals:	249 (A)		858.00 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP016

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					L	
4-8	10YR 5/4	100					SL	Refusal at 8in due to bedrock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 8

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP017

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.777197 Long: -85.004470 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP017

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	38	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	38.0 = Total Cover		
50% of total cover: 19.0	20% of total cover: 7.6		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	63	Y	FAC
2. Phytolacca americana	38	Y	FACU
3. Rubus pensilvanicus	38	Y	FAC
4. Passiflora incarnata	15	N	UPL
5. Perilla frutescens	15	N	FACU
6. Solidago canadensis	15	N	FACU
7. Dichanthelium clandestinum	3	N	FAC
8. Verbesina occidentalis	3	N	FACU
9. Boehmeria cylindrica	3	N	FACW
10.			
11.			
	193.0 = Total Cover		
50% of total cover: 96.5	20% of total cover: 38.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	38	x 1 =	38
FACW species	3	x 2 =	6
FAC species	104	x 3 =	312
FACU species	71	x 4 =	284
UPL species	15	x 5 =	75
Column Totals:	231 (A)		715.00 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP017

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					LS	
4-8	10YR 4/4	95	10YR 6/8	5	C	M	SL	
8-12	10YR 4/3	90	7.5YR 4/6	10	C	M	SL	Auger refusal at 12in due to cobble

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 8

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP018

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.778424 Long: -85.006170 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP018

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	63	Y	FACU
2. Fraxinus americana	15	N	FACU
3. Carya glabra	15	N	FACU
4. Ilex opaca	3	N	FACU
5.			
6.			
7.			
	96.0	= Total Cover	
50% of total cover: 48.0	20% of total cover: 19.2		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Fraxinus americana	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	15.0	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3.0		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	63	Y	FAC
2. Verbesina occidentalis	15	N	FACU
3. Boehmeria cylindrica	15	N	FACW
4. Polystichum acrostichoides	3	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	96.0	= Total Cover	
50% of total cover: 48.0	20% of total cover: 19.2		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	63	x 3 =	189
FACU species	129	x 4 =	516
UPL species	0	x 5 =	0
Column Totals:	207 (A)		735.00 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP018

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 5/3	100					SL	Refusal at 10in due do bedrock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 10

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP019

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.778186 Long: -85.007037 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** **Yes ✓ No ____**
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ✓ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 1
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP019

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	85	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	85.0 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Juniperus virginiana	3	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	3.0 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		
Herb Stratum (Plot size: 5' Radius)			
1. Boehmeria cylindrica	3	Y	FACW
2. Persicaria longiseta	3	Y	FAC
3. Microstegium vimineum	3	Y	FAC
4. Juncus effusus	3	Y	FACW
5. Schedonorus arundinaceus	3	Y	FACU
6. Oxalis stricta	3	Y	FACU
7.			
8.			
9.			
10.			
11.			
	18.0 = Total Cover		
50% of total cover: 9.0	20% of total cover: 3.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.43 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	6	x 2 =	12
FAC species	6	x 3 =	18
FACU species	9	x 4 =	36
UPL species	0	x 5 =	0
Column Totals:	106 (A)		151.00 (B)

Prevalence Index = B/A = 1.42

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP019

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	85	10YR 6/8	15	C	M	L	
4-12	10YR 4/3	90	7.5YR 6/8	10	C	M	SL	
12-18	10YR 4/1	75	7.5YR 6/8	25	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP020

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.778186 Long: -85.007037 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 1
Water Table Present?	Yes ✓	No _____	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 1

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP020

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	3	N	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	3.0 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Mentha spicata	38	Y	FACW
2. Cyperus erythrorhizos	15	Y	FACW
3. Persicaria hydropiper	15	Y	OBL
4. Carex lurida	15	Y	OBL
5. Boehmeria cylindrica	3	N	FACW
6. Juncus effusus	3	N	FACW
7. Ludwigia palustris	3	N	OBL
8. Bidens aristosa	3	N	FACW
9.			
10.			
11.			
	95.0 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	36	x 1 =	36
FACW species	62	x 2 =	124
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	98 (A)		160.00 (B)

Prevalence Index = B/A = 1.63

Hydrophytic Vegetation Indicators:

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

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

Definitions of 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 ___

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

Indicator 1 (Rapid Test) present with all dominant species FACW or OBL; parameter met. Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP020

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	85	10YR 6/8	15	C	M	L	
4-12	10YR 4/1	90	7.5YR 6/8	10	C	M	SL	Auger refusal due to cobble at 12in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-20

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP021

Investigator(s): D. Hunter, I. Bentley Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.776770 Long: -85.009255 Datum: WGS84

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP021

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Schedonorus arundinaceus	63	Y	FACU
2. Trifolium repens	15	N	FACU
3. Eleusine indica	15	N	FACU
4. Persicaria longiseta	3	N	FAC
5. Vernonia noveboracensis	3	N	FACW
6. Plantago rugelii	3	N	FACU
7.			
8.			
9.			
10.			
11.			
	102.0 = Total Cover		
50% of total cover: 51.0	20% of total cover: 20.4		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	3	x 3 =	9
FACU species	96	x 4 =	384
UPL species	0	x 5 =	0
Column Totals:	102 (A)		399.00 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP021

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					L	
4-18	7.5YR 4/6	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-08-19

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP022

Investigator(s): I. Bentley, D. Hunter Section, Township, Range:

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.773622 Long: -85.000928 Datum: NAD83

Soil Map Unit Name: Garmon-Caneyville association, very steep NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP022

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	35	Y	FAC
2. Aesculus flava	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
	50.0 = Total Cover		
50% of total cover: 25.0	20% of total cover: 10.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Asimina triloba	10	Y	FAC
2. Lindera benzoin	5	Y	FAC
3. Ulmus rubra	5	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
	20.0 = Total Cover		
50% of total cover: 10.0	20% of total cover: 4.0		
Herb Stratum (Plot size: 5' Radius)			
1. Lindera benzoin	5	Y	FAC
2. Asimina triloba	5	Y	FAC
3. Polystichum acrostichoides	5	Y	FACU
4. Carya ovata	3	N	FACU
5. Microstegium vimineum	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	21.0 = Total Cover		
50% of total cover: 10.5	20% of total cover: 4.2		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	3	N	FAC
2.			
3.			
4.			
5.			
	3.0 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	71	x 3 =	213
FACU species	23	x 4 =	92
UPL species	0	x 5 =	0
Column Totals:	94 (A)		305.00 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP022

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/2	100					SL	
1-5	10YR 4/4	100					SL	
5-18	7.5YR 5/6	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP028

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.779103 Long: -85.011928 Datum: NAD83

Soil Map Unit Name: Newark silt loam, occasionally flooded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

No primary and only one secondary indicator of wetland hydrology present; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP028

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Zea mays	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90.0 = Total Cover		
50% of total cover: 45.0	20% of total cover: 18.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	90	x 5 =	450
Column Totals:	90 (A)		450.00 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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** ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP028

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/4	100					SIL	
8-18	10YR 4/4	90	10YR 6/2	10	D	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP029

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.770213 Long: -84.994528 Datum: NAD83

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

All parameters met; area is considered a palustrine forested (PFO) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ✓ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 2
Water Table Present?	Yes ✓	No _____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP029

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	25	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	25.0 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Ligustrum sinense	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5.0 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1.0		
Herb Stratum (Plot size: 5' Radius)			
1. Persicaria longiseta	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20.0 = Total Cover		
50% of total cover: 10.0	20% of total cover: 4.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Vitis rotundifolia	10	Y	FAC
2.			
3.			
4.			
5.			
	10.0 = Total Cover		
50% of total cover: 5.0	20% of total cover: 2.0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	60 (A)		135.00 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP029

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 6/1	100					SL	
4-18	10YR 6/1	90	10YR 4/4	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP030

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.770416 Long: -84.994536 Datum: NAD83

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP030

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2. Juglans cinerea	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
	30.0 = Total Cover		
50% of total cover: 15.0	20% of total cover: 6.0		

Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Herb Stratum (Plot size: 5' Radius)			
1. Verbesina occidentalis	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15.0 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3.0		

Woody Vine Stratum (Plot size: 30' Radius)			
1. Toxicodendron radicans	6	Y	FAC
2.			
3.			
4.			
5.			
	6.0 = Total Cover		
50% of total cover: 3.0	20% of total cover: 1.2		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	26	x 3 =	78
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	51 (A)		178.00 (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP030

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					SL	
3-8	10YR 5/3	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 8

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP031

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.771021 Long: -84.994693 Datum: NAD83

Soil Map Unit Name: Caneyville-Garmon association, steep NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

All parameters met; area is considered a palustrine emergent (PEM) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No _____	Depth (inches): 8
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP031

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Echinochloa colona	35	Y	FACW
2. Persicaria longiseta	25	Y	FAC
3. Typha latifolia	10	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70.0 = Total Cover		
50% of total cover: 35.0	20% of total cover: 14.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	35	x 2 =	70
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		155.00 (B)

Prevalence Index = B/A = 2.21

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL Sampling Point: DP031

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 6/2	100					SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 9

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP032

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.769046 Long: -84.996917 Datum: NAD83

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

All parameters met; area is considered a palustrine emergent (PEM) wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

At least one primary or two secondary indicators observed; parameter met.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP032

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Morus rubra	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	20.0 = Total Cover		
50% of total cover: 10.0	20% of total cover: 4.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Persicaria pensylvanica	20	Y	FACW
2. Symphyotrichum pilosum	15	Y	FAC
3. Rubus allegheniensis	8	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	43.0 = Total Cover		
50% of total cover: 21.5	20% of total cover: 8.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1. Fallopia scandens	10	Y	FAC
2.			
3.			
4.			
5.			
	10.0 = Total Cover		
50% of total cover: 5.0	20% of total cover: 2.0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	25	x 3 =	75
FACU species	28	x 4 =	112
UPL species	0	x 5 =	0
Column Totals:	73 (A)		227.00 (B)

Prevalence Index = B/A = 3.11

Hydrophytic Vegetation Indicators:

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

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

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

Indicator 2 (Dominance Test) present with greater than 50% of dominant species FAC or wetter; parameter met. Prevalence Index calculated for reference purposes only.

SOIL

Sampling Point: DP032

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					SIL	
5-18	10YR 6/2	90	10YR 3/3	10	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicator F3 (Depleted Matrix) present; parameter met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP033

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.769100 Long: -84.997254 Datum: NAD83

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

Indicators of wetland hydrology absent; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP033

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Morus alba	30	Y	UPL
2. Juglans nigra	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
	45.0 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (Plot size: 5' Radius)			
1. Microstegium vimineum	60	Y	FAC
2. Verbesina occidentalis	10	N	FACU
3. Symphyotrichum pilosum	5	N	FAC
4. Rubus allegheniensis	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80.0 = Total Cover		
50% of total cover: 40.0	20% of total cover: 16.0		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	30	x 4 =	120
UPL species	30	x 5 =	150
Column Totals:	125 (A)		465.00 (B)

Prevalence Index = B/A = 3.72

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL

Sampling Point: DP033

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/4	100					SIL	
3-18	10YR 5/6	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Barrelhead Solar City/County: Wayne County Sampling Date: 2024-09-30

Applicant/Owner: Barrelhead Solar LLC State: Kentucky Sampling Point: DP034

Investigator(s): I. Bentley, S. Davis Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 3-7

Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.770196 Long: -84.997050 Datum: NAD83

Soil Map Unit Name: Frederick silt loam, 12 to 20 percent slopes, eroded NWI classification: None

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

One or more parameters lacking; area is not considered a definitional wetland. The lead delineator conducted a due diligence review of the Antecedent Precipitation Tool (APT) and determined that hydrologic conditions were normal at the time of survey.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

Indicators of wetland hydrology absent; parameter lacking.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP034

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	25	Y	FACU
2. Juniperus virginiana	20	Y	FACU
3.			
4.			
5.			
6.			
7.			
	45.0 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9.0		
Sapling/Shrub Stratum (Plot size: 15' Radius)			
1. Rosa multiflora	25	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	25.0 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5.0		
Herb Stratum (Plot size: 5' Radius)			
1. Rosa multiflora	15	Y	FACU
2. Verbesina occidentalis	15	Y	FACU
3. Vernonia gigantea	10	Y	FAC
4. Digitaria bicornis	8	N	UPL
5. Juniperus virginiana	5	N	FACU
6. Symphyotrichum pilosum	5	N	FAC
7. Liriodendron tulipifera	5	N	FACU
8.			
9.			
10.			
11.			
	63.0 = Total Cover		
50% of total cover: 31.5	20% of total cover: 12.6		
Woody Vine Stratum (Plot size: 30' Radius)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	110	x 4 =	440
UPL species	8	x 5 =	40
Column Totals:	133 (A)		525.00 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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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 ✓

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

Indicators of hydrophytic vegetation absent; parameter lacking.

SOIL Sampling Point: DP034

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/4	100					SIL	
6-18	10YR 4/6	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Hydric soil indicators absent; parameter lacking.

COPPERHEAD
ENVIRONMENTAL CONSULTING

Appendix E

Employee Resumes

COPPERHEAD
ENVIRONMENTAL CONSULTING

DAKOTA HUNTER

SENIOR WETLAND SCIENTIST

Regulatory Expertise

- Clean Water Act
- NEPA
- Endangered Species Act
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act
- Chesapeake Bay Preservation Act

Industry Clientele

- Utilities/Traditional Energy Sources
- US Department of Defense
- US Department of the Interior/National Park Service
- US Fish and Wildlife Service
- Corresponding State Agencies
- FHWA & State DOTs
- Academic Institutions & NGOs

Listed Taxa Expertise

- Plants
- Avian
- Herptiles

Survey Expertise

- Wetland Delineation
- Stream Assessments
- Botanical Surveys
- Mitigation Monitoring
- Avian Surveys
- Herpetological Surveys

Certifications/Trainings

- Professional Wetland Scientist (PWS)
- Tennessee Qualified Hydrologic Professional (QHP)
- OSHA 40 Hour Construction
- First Aid/CPR

Affiliations

- Virginia Native Plant Society
- The Society of Wetland Scientists
- Virginia Herpetological Society
- Trout Unlimited
- Rivanna Conservation Alliance

Education

- **M.S. Biology**, 2019, College of William & Mary, Williamsburg, VA
- **B.S. Biology & Environmental Science**, 2017, College of William & Mary, Williamsburg, VA

Qualifications and Background

Mr. Hunter has 8 years of experience working as a wetland scientist across the eastern seaboard and as a wildlife biologist conducting surveys for federal and state listed flora and fauna species. He completed Master's level research studying correlations between invasive plant prevalence, environmental factors, and native plant assemblages on wetland mitigation banks. He has worked as a wetland and stream mitigation manager and has led wetland delineations and rare species surveys on multiple large-scale energy projects, roadway expansions, commercial real estate developments and federal land improvement projects. Mr. Hunter has developed and implemented botanical inventories and related research, invasive species management, and mitigation monitoring plans across Virginia and the southeastern United States. Mr. Hunter was certified as a Professional wetland Scientist (PWS) in 2023 by the Society of Wetland Scientists Professional Certification Program, and as a Qualified Hydrologic Professional (QHP) by the Tennessee Department of Environment and Conservation.

Publications

Dakota M. Hunter and Douglas A. DeBerry. 2023. Environmental Drivers of Plant Invasion in Wetland Mitigation. Wetlands **43**:81

DeBerry, DA and DM Hunter. 2021. Invasive Species Research in Non-tidal Compensatory Mitigation: Final Report. College of William & Mary, Williamsburg, VA. Resource Protection Group RFP#08.

Douglas A. DeBerry, Dakota M. Hunter. 2018. An Account of *Triadica sebifera* (L.) Small in Virginia with Comments on Invasiveness and Range Expansion. Castanea, 83(2), 300-304.

Dakota M. Hunter. 2017. Field Notes: Rainbow Snake (*Farancia erytrogramma)* in Williamsburg City, VA. Catesbeiana 37(2).

Presentations

Floating Solar: Maximizing Renewable Energy Production, Minimizing Wildlife Conflict. 2023 REWI Solar Power and Wildlife/Natural Resources Symposium

Invasive Species Research in Compensatory Wetland Mitigation. 2019. The Society of Wetland Scientists Annual Meeting.

The Ups and Downs of Large-Scale Habitat Restoration. 2019. Virginia Native Plant Society Monthly Meeting.

John Levy Memorial Presentation/William and Mary College Woods Diversity *Walk*. 2019. William and Mary Law School Reunion.

Selected Project Experience

Dominion Energy, Wetland Delineation, Rare, Threatened, and Endangered Plant, Bird, and Small Mammal Species Surveys, Atlantic Coast Pipeline, VA

Environmental Scientist

Mr. Hunter served as wetlands team lead and environmental staff scientist for numerous project tasks associated with the over 600-mile LNG pipeline construction project. These responsibilities included wetland delineation in adherence to the USACE most current guideline for identification and determining the limits of federal jurisdiction, stream assessments using the North Carolina DEQ Methodology for identification of Intermittent and Perennial Steams, and RTE species surveys across 305 miles of proposed pipeline corridor. Plant surveys included performing detailed investigation of the project corridor for seven federally listed, three state listed, and nine state ranked species along with a host of species of concern that were identified by the George Washington National Forest. Responsibilities also included mapping of natural community types, generating comprehensive plant species lists, photo documentation of onsite conditions, and collecting applicable GIS/GPS data.

Dominion Energy, Transmission and Storage Wetland delineations, VA, NC

Lead Wetland Delineator

Mr. Hunter let wetland delineation teams for multiple projects totaling over 200 miles of transmission line corridor from 2019 to 2022 as part of a multi-service agreement for Dominion Energy. Mr. Hunter led field efforts to deliver natural resource assessments identifying wetlands and waters within transmission corridors slated for routine maintenance and pole replacement. Mr. Hunter coordinated field efforts with Dominion Energy and C2 Consulting for land access and scheduling. Mr.

Hunter also provided quality control for data collected throughout the projects and prepared Preliminary Jurisdictional Determination packages for submittal to the USACE.

Natural Resource Inventories, AL, TN, SC, GA, FL
Environmental Scientist
Mr. Hunter served as a field lead contracted by a private land holding company to conduct natural resource inventories and prepare detailed reports for a total of 53 properties located in South Carolina, Tennessee, Georgia, Alabama, Tennessee, and Florida, and ranging in size from less than 100 acres to over 800 acres. Mr. Hunter participated in aquatic resource mapping, as well as seasonal botanical surveys, avian surveys, and herpetological surveys to document the presence of rare, threatened and endangered, species, and estimate species diversity on those properties. Mr. Hunter confirmed the presence of aquatic features mapped during desktop review, performed stream assessments, sampled aquatic herpetofauna and macroinvertebrates using dip nets, and documented species by auditory and visual survey while navigating often difficult environmental conditions. Mr. Hunter also worked extensively to ensure sampling adequacy by generating and analyzing species accumulation curves, reviewing transect placement and adherence and scrutinizing species lists for accurate identification and sufficient documentation.

Piedmont Natural Gas, Line 439 Protective Fencing, Greenville, NC
Wetland Scientist
Mr. Hunter served as Wetland Scientist and Field Team Lead tasked with identifying and delineating jurisdictional Waters of the United States within the approximate 255-acre, 20-mile long study area that partially circumscribes the City of Greenville, North Carolina. Mr. Hunter was also involved in the documentation and report preparation needed to comply with Clean Water Act Section 404/401 regulations. Additionally, Mr. Hunter participated in archeological field surveys for the length of the corridor.

TC Energy, Virginia Reliability Project,
Waverly, VA to Chesapeake, VA
Lead Wetland delineator
For this highly visible and ongoing LNG pipeline replacement project Mr. Hunter served as a Lead wetland delineator. This project included wetland delineation along approximately 50 miles of existing pipeline in addition to compressor stations, mainline valves, and access roads. Mr. Hunter led efforts and field coordination with TC Energy routers and engineers to efficiently and effectively deliver natural resource data assessments to help identify preferred ROW placement. Mr. Hunter coordinated field efforts with TC energy for land access and scheduling. Mr. Hunter also maintained team safety records, oversaw, and provided quality control for data collected throughout the project, and ensured compliance with all Client, Agency, and Employer standards.

Mountain Valley Pipeline Supplemental Environmental Impact Statement, Jefferson National Forest, Virginia and West Virginia. Mr. Hunter conducted stream and riparian buffer assessments and served as **a** technical writer for the preparation of an SEIS for a proposed pipeline crossing the JNF. The project was on a fast-tracked schedule; the Record of Decision was issued 6 months after contract. The Forest Service and White House General Counsel reviewed and approved our SEIS. Project is restarting construction this summer.

City of Norfolk, Ohio Creek Watershed Study, Norfolk, VA
Project Scientist
Mr. Hunter served as a Project Scientist for the City of Norfolk on the Ohio Creek Watershed Project. He collected data and documentation of natural resources to support National Environmental Policy Act (NEPA) compliance and permitting for flood protection, stormwater infrastructure, and living shoreline

construction in the Grandy Village neighborhood of Norfolk. Responsibilities included wetland delineation, tree identification and quantification, and support for oyster restoration among others.

VDOT, I-64 Hampton Roads Bridge Tunnel (HRBT) Expansion Project, Norfolk/Hampton, VA
Environmental Scientist
As a designated VDOT Bird Monitor, Mr. Hunter helped implement the avian survey, data collection protocol for this project in coastal Virginia. He conducted nesting season bird surveys (March-September) to determine avian abundance, behavior, and land use for numerous colonial nesting species within the project area. He was also responsible for the monitoring and reporting associated with avian deterrent measures across the site. Mr. Hunter is also tasked with on-call injured bird, egg, and nest response, and associated documentation and reporting. These efforts are all in support of adherence to VDOTs Federal and State permits for conducting work to expand the capacity of the interstate. Mr. Hunter directly coordinates with VDOT Lead Bird Monitor on any project related matters, assisting in timely and accurate coordination with multiple agencies and other stakeholders.

Mitigation Bank Maintenance and Monitoring, Various
Lead Scientist
Mr. Hunter served as a lead scientist for vegetation and stream monitoring associated with over a dozen non-tidal wetland and stream mitigation banks within the U.S. Mid-Atlantic. These projects included vegetation sampling from stream and buffer plots, bio-physical/chemical water assessment, aquatic macroinvertebrate sampling, and hydrogeomorphology data collection used to support annual monitoring reports to the Virginia Department of Environmental Quality and the U.S. Army Corps of Engineers. Mr. Hunter was also responsible the development and implementation of site maintenance plans to ensure adherence with Mitigation Banking Instrument (MBI) standards, including removal of non-native invasive species, planting of native trees and herbaceous vegetation, and construction monitoring.

Reedy Creek Mitigation Bank
Lead Scientist
Mr. Hunter served as a lead scientist for vegetation and stream monitoring associated with the Reedy Creek Mitigation Bank. The project included regular maintenance to ensure adherence with Mitigation Banking Instrument (MBI) standards, removal of non-native invasive species, vegetation sampling from stream and buffer plots, bio-physical/chemical water assessment, aquatic macroinvertebrate sampling, hydrologic and geomorphological data collection used to support annual monitoring reports to the Virginia Department of Environmental Quality and the U.S. Army Corps of Engineers.

Mr. Hunter performed a similar role in association with the Cannon Regional Environmental Bank (CREB) in Orange County, VA, the Lakota Mitigation Bank in Culpeper County, VA, the James River Mitigation Bank in Goochland County, VA, and the Buena Vista Mitigation Bank in King George County, VA, the Bailey Mitigation Bank in Charles City County, VA, the Coan Mill Mitigation Bank in Northumberland County, VA, the Baptist Run Stream Restoration in the City of Newport News, VA, the Pamunkey Farms Mitigation bank, in New Kent County, VA, the Hungry Run Mitigation Bank in Rappahannock County, VA, the Amelia Environmental Bank, in Amelia County, VA, and the Buck Mountain Mitigation Bank in Albemarle County, VA

Central Hudson Gas and Electric (CHG&E), Elting's Remediation Monitoring, NY
Lead Scientist
Mr. Hunter served as a lead botanist responsible for monitoring vegetation communities within a large remediation site in eastern New York. Woody and Herbaceous vegetation was identified to species within numerous pre-established plots over the course of a multi-year monitoring period.

Southeastern Public Service Authority (SPSA) Landfill Expansion EIS, Suffolk and Isle of White counties, VA

Lead wetland delineator

Mr. Hunter was hired by the Norfolk District of the United States Army Corps of Engineers (USACE) as a lead wetland delineator responsible for assessing the extent and quality of wetlands and waters associated with design alternatives for the proposed SPSA landfill expansion in southeast Virginia. Conditions of the proposed alternatives warranted use of complex methodologies for assessing wetlands and waters detailed in Chapter 5 of the USACE Wetland delineation manual. The data collected were used to draft components of an EIS and the associated alternatives analyses.

LIV Housing development, Norfolk, VA

Lead wetland delineator and permitting specialist

Mr. Hunter served as a lead wetland delineator and permitting specialist for the development of a multi-family housing development in Norfolk Virginia. He was responsible for completing a wetland delineation and the complete section 401/404 process, including a Joint Permit Application from the Virginia Marine Resource Commission, the City of Norfolk office of environmental services, the Virginia Department of Environmental Quality and the USACE. Mr. Hunter has served in this role in the completion of several other projects in the residential/commercial development, energy and transportation sectors within the southeast, midwest, and mid-Atlantic regions.

New England Power/National Grid, A1B2 Transmission Line Rebuild, New Hampshire, Vermont and Massachusetts

Lead wetland delineator

Mr. Hunter served as a lead wetland delineator responsible for assessing the extent of wetlands and waters within nearly 50 miles of transmission line ROW. He also performed tasks as a lead botanist completing Rare, Threatened and Endangered (RTE) plant species surveys within the transmission line and adjacent to the Vernon 13 substation.

Vermont Gas Systems (VGS), NNIS Monitoring Plan Implementation, Vermont.

Field Botanist

Mr. Hunter worked as a field botanist performing Non-Native Invasive Species (NNIS) monitoring and removal within natural gas transmission corridors across central and western Vermont. Invasive plant populations were identified, mapped and monitored annually to ensure compliance with Vermont NNIS regulations.

Emera Maine, Transmission and Battery storage

Lead wetland delineator

Mr. Hunter served as a lead wetland delineator responsible for assessing the extent of wetlands and waters for multiple transmission line rebuild projects within central and northern Maine. Field tasks for these projects were conducted in remote wilderness areas and required substantial planning and coordination to complete field work safely and efficiently.

Vermont Department of Transportation (VTrans) Roadway Expansions, Vermont RTE Plant surveys and NNIS Monitoring

Field Botanist

Mr. Hunter worked as a field botanist performing Non-Native Invasive Species (NNIS) monitoring and removal within transportation corridors for several roadways in Vermont. Invasive plant populations were identified, mapped, and monitored annually to ensure compliance with Vermont NNIS regulations. In certain locations, RTE plant surveys were conducted concurrently with NNIS Monitoring.

Sun Energy, Springfield Solar, Hanover County, VA.

Lead wetland delineator

Mr. Hunter participated in the delineation of approximately 500 acres In Hanover County, VA for the proposed Springfield Solar Facility. He was responsible for the delineation, mapping, and evaluation of stream and wetland features on site. Mr. Hunter collected data for the completion of Virginia's Hydrologic Determination Field Data Sheets (James City County methodology) and USACE wetland Determination forms. He also assisted in the preparation of a request for Preliminary Jurisdictional Determination for the site.

Strata Solar, Swift Creek Solar, Rocky Mount, NC
Lead wetland delineator
Mr. Hunter participated in the delineation of approximately 600 acres near Rocky Mount, NC for the proposed Swift Creek Solar Facility. He was responsible for the delineation, mapping, and evaluation of stream and wetland features on site as well as habitat evaluation for RTE aquatic species including the Neuse River Waterdog. Mr. Hunter collected data for the completion of North Carolina's Hydrologic Determination Field Data Sheets and USACE wetland Determination forms. He also assisted in the preparation of a request for Preliminary Jurisdictional Determination for the site.

Strata Solar, Firefly Solar and Storage, Haywood County, TN.
Lead wetland delineator
Mr. Hunter led one of 6 teams of wetland scientists responsible for delineating approximately 2500 acres of highly disturbed land in Haywood County Tennessee for the proposed Firefly Solar and Storage Facility. He was responsible for the delineation, mapping, and evaluation of several miles of stream and several acres of wetlands. Mr. Hunter collected data for the completion of Tennessee's Hydrologic Determination Field Data Sheets and USACE wetland Determination forms. He also assisted in the preparation of a request for Preliminary Jurisdictional Determination for the site.

EMI Energy, Rumford Battery Storage, Rumford Maine.
Lead wetland delineator
Mr. Hunter participated in the delineation of approximately 80 acres in Rumford Maine for the proposed Rumford Battery Storage Facility. He was responsible for the delineation, mapping, and evaluation of stream and wetland features on site. Mr. Hunter collected data for the completion USACE wetland Determination forms. He also assisted in the assessment of RTE plant habitat on site.

Florida Power and Light, Baker County Solar Delineation
Wetland Scientist
Mr. Hunter participated in the delineation of approximately 600 acres In Baker County, FL for an unnamed Solar Facility in Baker County, FL. He was responsible for the delineation, mapping, and evaluation of stream and wetland features on site. He also assisted in gopher tortoise occupancy surveys for the site.

Pine Gate Renewables, Solar Critical Issues Analyses (CIA), VA
Lead Scientist
Mr. Hunter completed a series of desktop analyses for potential solar facilities across southern and central Virginia as part of a high-level pursuit of suitable locations for solar development. Sites ranged in size from 200 acres to over 2500 acres, and available data including LiDAR, aerial imagery, NWI/NHD mapping, SSURGO soil data and previous delineation results were used to accurately map aquatic features without field delineations. Mr. Hunter was also responsible for generating preliminary results from Virginia's Department of Wildlife Resources (DWR), Department of Conservation and Recreation (DCR), Department of Historic Resources (DHR), and U.S, Fish and Wildlife's online Information for Planning and Consultation (IPaC) tool to identify constraints relating to historic and/or wildlife resources.

Cape Hatteras (CAHA) National Seashore Sediment Management Framework EIS, North Carolina
Technical Writer
Mr. Hunter served as a technical writer for wildlife and aquatic resource components of EIS published in support of beach nourishment and shoreline resiliency programs implemented within the Cape Hatteras National seashore.

Mark Twain National Forest (MTNF) Fuels Reduction and Prescribed Fire EA, Missouri.
Technical Writer
Mr. Hunter worked as a technical writer analyzing the potential effects of a long-term fuels reduction and prescribed fire plan on streams and other aquatic resources within the MTNF as part of an Environmental Assessment (EA).

COPPERHEAD
ENVIRONMENTAL CONSULTING

ISAAC BENTLEY

AQUATIC/WETLAND SCIENTIST II

Regulatory Expertise

- CWA (Section 404 & 401)
- United States Army Corps of Engineering (USACE) Wetland Delineation Manual & Regional Supplements
- ESA (§7 & §10)
- Migratory Bird Treaty Act

Industry Clientele

- KY Department of Fish and Wildlife Resources
- TN Department of Environment and Conservation

Education

- **M.S. Biology**, 2020, Eastern Kentucky University, Richmond, Kentucky
- **B.S. Wildlife Management**, 2017, Eastern Kentucky University, Richmond, Kentucky

Taxa Expertise

- Inland Stream Fishes (Listed)
- Freshwater Invertebrates (Listed)
- Wetland and Aquatic plants
- Eastern U.S. Woody Plants and Vegetation
- Passerines and Raptors
- Reptiles/Amphibians
- Mammals

Survey Expertise

- Wetland and Stream Delineation
- Habitat Assessments, Aquatic and Terrestrial
- Presence/Absence
- Fish Shocking
- Aquatic Invertebrate
- Vegetation, Wetland and Upland
- Avian, Passerine and Raptor

Certifications/Trainings

- Wetland Delineation Certificate, Wetland Training Institute, 2021
- Swamp School Training, 2022
- Tennessee Department of Environment & Conservation Hydrologic Determination Training Course, 2022
- Certified Wildlife Biologist (TWS)
- Type II Wildland Firefighter
- Chronic Wasting Disease Workshop, Retropharyngeal Lymph Node Extraction

Qualifications and Background

Mr. Bentley has 8 years of experience studying, working, and volunteering alongside universities, agencies, and NGOs with federal and state listed flora and fauna species. He has conducted master's level research on the ability of movement in stream fishes as part of a restoration technique employed by Kentucky Department of Fish and Wildlife. He has worked extensively with wetland delineation, stream fishes, vegetation surveys, avian surveys/capture methods, and identification skills. Mr. Bentley has designed, developed, and implemented an inventory, research, management, and monitoring for his fish study. He has filled supervisory roles during his master's research, employing assistance and coordinating dates for employing field-method based research.

Affiliations

- The Wildlife Society
- National Wild Turkey Federation
- Rocky Mountain Elk Foundation
- Southeastern Fishes Council
- Ecological Society of America

Selected Project Experience

Wetland & Stream Delineation for Mammoth Cave Campground Denison Ferry Road, KY 2023
Conducted a wetland and stream delineation for a site of approximately 200 acres near Mammoth Cave, Kentucky.

Multiple Service Aquatic Surveys for Lochner Bridge Replacements, KY 2022
Conducted preliminary multiple-service surveys for 23 bridges to be replaced in areas that span the entirety of Kentucky. Once preliminary surveys were conducted, aquatic surveys for listed species (Big Sandy Crayfish, Cumberland Darter, and Kentucky Arrow Darter) were conducted.

Wetland & Stream Delineation for DNV Mastodon Solar Project, MI 2022
Conducted a wetland and stream delineation for a site of approximately 3,000 acres near Blissfield, Michigan.

Wetland & Stream Delineation for CCR Fiddler Solar Project, TN 2022
Conducted a wetland and stream delineation for a site of approximately 850 acres in DeKalb County, Tennessee.

Wetland & Stream Delineation for EDP Solar Project, KY 2022
Conducted a wetland and stream delineation for a site of approximately 2,500 acres in Breckinridge County, Kentucky.

Wetland & Stream Delineation for JDA Geil Lane Project, KY 2022
Conducted a wetland and stream delineation for a site of approximately 35 acres near Louisville, Kentucky.

Wetland & Stream Delineation for CCR Tupelo MS Solar Project, MS 2022
Conducted a wetland and stream delineation for a site of approximately 3,000 acres in Tupelo, Mississippi.

Wetland & Stream Delineation for TVA Transmission Lines (Barkley-Oakwood) Project, KY/TN 2022
Conducted a corridor wetland and stream delineation for a site of approximately 60 linear miles in Western Kentucky and Tennessee.

Wetland & Stream Delineation for Village at the Palisades, KY 2022
Conducted a wetland and stream delineation for a site of approximately 8 acres in Mercer County, Kentucky.

Wetland & Stream Delineation for WKRRA for Wickliffe Solar Project, KY 2022
Conducted a wetland and stream delineation for a site of approximately 15 acres in Ballard County, Kentucky.

Wetland & Stream Delineation for Horseshoe Bend Solar Project, KY 2022
Conducted a wetland and stream delineation for a site of approximately 560 acres in Green County, Kentucky.

Wetland & Stream Delineation for Engie, Mt. Olive Creek Solar Project KY 2022
Conducted a wetland and stream delineation for a site of approximately 512 acres in Russel and Adair Counties, Kentucky.

Wetland & Stream Delineation for TVA – Incompatible Vegetation Project in Transmission Right of Ways, TN/KY/AL/GA 2022

Conducted a corridor wetland and stream delineation for transmission lines approximately 200 linear miles long primarily in Tennessee, but also in Kentucky, Alabama, and Georgia.

Wetland & Stream Delineation for Hardin County Solar Project, KY 2021
Corrected a wetland and stream delineation alongside the USACE for a site of approximately 1100 acres in Hardin County, Kentucky.

Wetland & Stream Delineation for Pine Gate Renewables Belsena Solar Project, PA 2021
Conducted a wetland and stream delineation for a site of approximately 900 acres in Clearfield County, Pennsylvania.

Movement of Stream Fishes Over Potential Migratory Barriers, Kentucky Department of Fish and Wildlife Resources, Menifee Co., Kentucky – 2017-2020
Mr. Bentley designed, developed, managed, and conducted movement surveys of stream fishes in East Fork Indian Creek in the Red River Gorge of Kentucky. The study was formed to understand passage of all stream fish, including two species of Kentucky state concern (*Percina maculata* and *Etheostoma baileyi*), over potential anthropogenic migratory barriers. Logistics of the study included orchestrating, overseeing, and installing/removing field equipment, utilizing two types of marking techniques (PIT and VIE), and monitoring fish movement over the duration of two years. Management recommendations were provided to Federal and State organizations based on data analyses and results.

Presentations

Movement of stream fishes across potential migration barriers in East Fork Indian Creek, Menifee Co. Kentucky, 2019. The Kentucky Academy of Sciences and the Southeastern Fishes Council Annual Meeting

SHEA DAKOTA DAVIS

AQUATIC BIOLOGIST

Survey Expertise

- Freshwater Mussel Surveys and Relocation
- Mussel Habitat Assessment
- Electrofishing/Seining Fish Surveys and relocation
- Rapid Bioassessment Protocols

Relevant Coursework

- Forest Ecology
- Stream Restoration
- Fluvial Geomorphology
- Hydrogeology
- GIS
- Entomology
- Forest Entomology

Certifications/Training

- West Virginia Mussel Course (2023, 2024)
- Swamp School
- CPR
- Wilderness First Aid

Professional Experience

Copperhead Environmental Consulting, Inc., Aquatic Biologist, May 2022 – Present

Education

University of Kentucky, Bachelor of Science in Natural Resources and Environmental Science with concentrations in Water Resources, Field/Lab, and Wildlife, 2021

Qualifications and Background

Ms. Davis attended the University of Kentucky where she graduated summa cum laude with a Bachelor of Science in Natural Resources and Environmental Science.

During her undergraduate career, her emphasis areas were water resources, wildlife, and field/laboratory analysis. Presently she is an aspiring aquatic biologist with a specific interest in freshwater mussels as well gaining experience in delineating wetlands

Bridge Water Quality Monitoring TDOT, TN 2022-current
Conducts monthly monitoring of water chemistry parameters of two locations on Clear Creek, writes and submits a monthly report of results and calibrates YSI and turbidity meters.

Wetland & Stream Delineation for KY-536 Expansion Project, KY 2022
Conducted a wetland and stream delineation for an approximately 150-acre site in Kenton County, Kentucky.

Water Quality Survey, KY 2022.
Backpack electroshocking two reaches to investigate stream health of Yellow Creek, Middlesboro, KY using the Kentucky Index of Biotic Integrity (KIBI). Macroinvertebrate sampling for stream health assessments also took place using kick-netting as well as swoop-netting to collect samples.

Mussel Survey TDOT Gary Dyer, TN 2022
Conducted a freshwater mussel survey on Black Wolf Creek and its tributaries within the project boundary in Scott County, TN.

Bridge Surveys KYTC, KY 2022
Conducted a fish survey for a KYTC bridge replacement project in Tye Fork, Knox County, Kentucky. Including water quality assessment, mussel surveys, mussel habitat assessment, general stream assessment.

Fish Relocation for the Kentucky Bridge Program Project, KY 2022, 2023
Collected and identified fish within the impacted stream area and relocated the threatened Kentucky Arrow Darter (*Etheostoma spilotum*).

National Parks Service Mussel Surveys, WV 2022
Conducted mussel surveys for an inventory program on the New River, Gauley River, and Bluestone River for the National Park Service. Supervised by biologists Price Sewell and Taylor Fagin.

Hinkston Creek Water Quality Assessment, KY 2022
Evaluated water quality in Hinkston Creek (Bourbon County, KY) through bivalve (*Corbicula fluminea*) in situ growth studies in mussel silos, electrofishing and subsequent IBI, and by use of water quality meters.

Wetland & Stream Delineation for Montrose Environmental, TN 2023
Conducted a wetland and stream delineation for an approximately 29-acre site in Cheatham County, Kentucky.

Little Sextons Creek Habitat Assessment, KY 2023
Marked and recorded data on individual trees to be retained that served as potential habitat for bat species along Little Sextons Creek in service of the ILF-KDFWR stream restoration project in Jackson and Clay Counties, KY.

Slabcamp Branch Habitat Assessment, KY 2023
Marked and recorded data on individual trees to be retained that served as potential habitat for bat species along Slabcamp Branch in service of the ILF-KDFWR stream restoration project in Rowan County, KY.

Wetland & Stream Delineation for Lost City Solar, KY 2024
Conducted a wetland and stream delineation for an approximately 1,368-acre site in Muhlenberg County, Kentucky.