

Wetland Delineation Report for the Blossom Solar Project

Blossom Solar, LLC

**Blossom Solar Project
Project No. 132219**

10/22/2021

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prepared for

**Blossom Solar, LLC
Blossom Solar Project
Morrow and Marion Counties, Ohio**

Project No. 132219

10/22/2021

prepared by

**Burns & McDonnell
Columbus, Ohio**

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CFR	Code of Federal Regulations
CWA	Clean Water Act
E	Ephemeral
EPA	Environmental Protection Agency
FAC	Facultative plants
FACU	Facultative upland plants
FACW	Facultative wetland plants
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
I	Intermittent
LRR	Land Resource Regions
MLRC	Multi-Resolution Land Characteristics
NFHL	National Flood Hazard Layer
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	Natural Resources Conservation Service
NRPW	Non-Relatively Permanent Water
NTCHS	National Technical Committee for Hydric Soils

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
NWI	National Wetlands Inventory
OEPA	Ohio Environmental Protection Agency
OBL	Obligate wetland plants
OHWM	Ordinary High Water Mark
ORAM	Ohio Rapid Assessment Method
P	Perennial
PEM	Palustrine Emergent wetland
PFO	Palustrine Forested wetland
Project	Blossom Solar Project
PSS	Palustrine Scrub Shrub wetland
PUB	Palustrine Unconsolidated Bottom wetland
QHEI	Qualitative Habitat Evaluation Index
Regional Supplement	Regional supplements to the 1987 Wetlands Delineation Manual
RPW	Relatively Permanent Water
S	Stream
SDA	Soil Data Access
SP	Sample Plot
SSURGO	Soil Survey Geographic Database
Survey Area	1,653 acres located in Morrow and Marion Counties, Ohio
TNW	Traditional Navigable Waterway
UPL	Upland plants
USACE	U.S. Army Corps of Engineers

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
W	Wetland
WOTUS	Waters of the U.S.

1.0 INTRODUCTION

Burns & McDonnell was retained by Blossom Solar, LLC (Blossom Solar) to provide wetland delineation services for the proposed Blossom Solar Project (Project) in Morrow and Marion Counties, Ohio (Figures 1.1 and 1.2, Appendix A). The Project is bounded to the south by State Route 309 (SR-309) and SR-288, extending west to Iberia Bucyrus Road/SR-100 and north to Crawford-Morrow Line Road/CR-8 just south of Galion, Ohio (Survey Area). The Survey Area is approximately 1,653 acres in size.

The purpose of this assessment was to identify wetlands and surface waters present within the Survey Area that may be considered “Waters of the United States” (WOTUS) and subject to regulation under the federal Clean Water Act (CWA) by the U.S. Army Corps of Engineers (USACE). The USACE and the U.S. Environmental Protection Agency (EPA) jointly define wetlands as: “Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (42 Fed. Reg. 37128-29). According to 40 CFR 230.3(s), WOTUS include all waters that may be used for interstate or foreign commerce, all interstate wetlands and waterways, intrastate wetlands and waterways of which the use, degradation, or destruction could affect interstate or foreign commerce, impoundments of waters, territorial seas, and wetlands adjacent to waters not including waste treatment systems, including their treatment ponds or lagoons designed to meet the requirements of the CWA.

Burns & McDonnell conducted a wetland and surface water delineation on April 26-30, 2021, to identify the location and extent of wetlands and surface waters present within the Survey Area. This report documents the methods and results of the desktop and field investigations conducted to identify wetlands and surface waters for the Project.

2.0 METHODS

The following sections summarize the methods used to complete the desktop review of existing data and to conduct the field investigations within the Survey Area.

2.1 Desktop Review

Burns & McDonnell reviewed available background information for the Survey Area prior to conducting the site visit. Available background information included the following:

- Multi-Resolution Land Characteristics Consortium (MRLC) National Land Cover Database 2016 (NLCD, 2016);
- 2019 U.S. Geological Survey (USGS) 7.5-minute topographic map (Galion, OH quadrangle);
- U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) map;
- USGS National Hydrology Dataset (NHD);
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL, 2009); and
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO, 2020) digital data for Morrow and Marion Counties.

Background data helps in identifying locations of potential wetland and surface waters. However, as these features may not have been field verified or modified since the data was published, the field analyses supersedes the mapped data.

2.2 Wetland Delineation

Identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology, originally set forth by the USACE in the 1987 Environmental Laboratory publication entitled “*Corps of Engineers Wetlands Delineation Manual: Technical Report Y-87-1*”, commonly referred to as the 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987).

The USACE released regional supplements to the 1987 Wetlands Delineation Manual outlining updated technical guidance and procedures for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the CWA or Section 10 of the Rivers and Harbors Act. The Survey Area is located within the following regional supplement(s) (Regional Supplements):

- *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010)

This wetland delineation used the hydrophytic vegetation, hydric soil, and wetland hydrology indicators as outlined in the Regional Supplement for each sample point. A general overview of hydrophytic vegetation, hydric soil, and wetland hydrology indicators are provided below. Detailed information for each indicator can be found in the Regional Supplement. In addition, methodology for determining wetland quality (where applicable), surface water boundaries, and farmed wetland determinations are provided below.

2.2.1 Hydrophytic Vegetation

To evaluate the presence of hydrophytic vegetation, data are gathered using a graduated series of plots, one for each vegetation stratum. Plot shape and size are dictated by vegetation type, as well as the shape and size of the plant community being evaluated.

The indicator status and percent absolute cover for plants within plots for all vegetation strata are recorded. The indicator status for plant species are based on an estimated probability of occurring in wetlands. This rating system, published by the USACE in 2020 (Federal Register, 2020) under the title “The National Wetland Plant List, version 3.4” (USACE, 2018), consists of obligate wetland plants (OBL), facultative-wet plants (FACW), facultative plants (FAC), facultative upland plants (FACU), and upland plants (UPL). Obligate plant species generally grow in water. Facultative plant species can exist in saturated or dry soil conditions, and upland plants typically require dry soil conditions to exist.

2.2.2 Hydric Soil

A description of the soil profile is used to evaluate the presence of hydric soil. The USDA recognizes 28 Land Resource Regions (LRRs) based on soil, climate, and land use. Hydric soil indicators for LRRs presented in the Regional Supplements are a subset of the National

Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils in the United States and are regularly modified. The most recent version of Field Indicators of Hydric Soils is Version 8.2 (USDA NRCS, 2018) and was used for this delineation.

2.2.3 Wetland Hydrology

Wetland hydrology indicators are separated into four groups and divided into a primary or secondary category based on their estimated reliability in the applicable region. Primary indicators provide stand-alone evidence of a current or recent hydrological event. Secondary indicators provide evidence of recent inundation or saturation when supported by one or more other primary indicators or secondary wetland hydrology indicators but should not be used alone.

2.2.4 Surface Water Assessment

Surface waters may only have one or two of the wetland criteria listed above. The USACE defines the ordinary high water mark (OHWM) as the boundary of surface waters (33 CFR 328.3[F]). The USACE issued an OHWM identification regulatory guidance letter (USACE, 2005) which defines “the OHWM [as] the line on the shore established by fluctuations of water and is indicated by physical characteristics such as:

- A clear, natural line impressed on the bank;
- Shelving;
- Changes in the character of soil;
- Destruction of terrestrial vegetation;
- The presence of litter and debris; or
- Other appropriate means that consider the characteristics of the surrounding areas.”

During low streamflow or drought conditions, the OHWM is used to determine the boundary of a surface water. During extremely high streamflow conditions or flood conditions the boundaries of surface waters cannot accurately be determined. Therefore, surface water boundaries should be delineated when normal streamflow conditions are present.

To differentiate boundaries between surface waters and adjacent wetlands, evidence of the OHWM is utilized. Changes in vegetation can also be evaluated to determine where true hydrophytic (FAC and FACW) plant species are present versus aquatic or OBL species; however, it should be noted that in many cases vegetation is not present within the channels of

surface waters. Vegetation adjacent to surface waters may be limited to species overhanging the banks and channel.

If the presence of a surface water is questionable, the USACE will typically conduct a review of historic aerial photographs and historic USGS topographic maps to confirm the current or historic presence of a surface water. This can include segments of streams that are entirely enclosed.

2.2.5 Ohio Rapid Assessment Method

Each delineated wetland was assigned a category using the Ohio EPA (OEPA) Ohio Rapid Assessment Method (ORAM) for Wetland Categorization. According to Ohio Administrative Code, Category 1 wetlands have minimal habitat and minimal hydrological and recreational functions. These wetlands do not provide critical habitat for threatened or endangered species. Category 2 wetlands have moderate wildlife habitat or hydrological or recreational functions. Category 2 wetlands are dominated by native vegetation but generally do not contain threatened or endangered species habitat. Category 3 wetlands have superior habitat or hydrological or recreational functions. These wetlands often provide habitat for threatened or endangered species.

The State of Ohio affords different levels of protection to wetlands based on wetland quality. The Quantitative Rating pages from the ORAM 10-page form for Wetland Categorization was completed for each delineated wetland, and a preliminary ORAM score for each wetland was determined. The ORAM score for each wetland is considered preliminary because a final score is only assigned by OEPA staff. A copy of the ORAM 10-page form for each delineated wetland is located in Appendix D.

2.2.6 Stream Habitat Evaluation Assessment

An assessment of habitat in flowing waters was performed for streams located within the Survey Area using either the OEPA Qualitative Habitat Evaluation Index (QHEI) or the OEPA Headwater Habitat Evaluation Index (HHEI). Information on substrate, in-stream cover, channel morphology, bank erosion and riparian zone, pool/glide and riffle/run quality, and map gradient was collected and recorded on HHEI or QHEI and Use Assessment Field Sheets. Primary headwater habitat streams are defined as streams having a watershed less than or equal to one

square mile and containing pools with maximum depths of less than or equal to 40 cm. Primary headwater habitat streams were evaluated using the HHEI, and the QHEI was used to evaluate streams that to did not qualify as primary headwater habitat. A total HHEI/QHEI site score was determined for each stream, and copies of the QHEI and HHEI and Use Assessment Field Sheets are included in Appendix E.

3.0 RESULTS

The following sections summarize the desktop evaluation and field investigations.

3.1 Desktop Review

Burns & McDonnell reviewed available background information for the Survey Area prior to conducting the site visit. These sources provide an indication of areas where wetlands and surface waters potentially occur and certain characteristics are present. A summary of the available background information is presented below and mapped on Figures in Appendix A.

3.1.1 MRLC National Land Cover Database

The NLCD and aerial imagery indicate the Survey Area is primarily cultivated crops (75.4 percent). Other common land use within the Survey Area includes hay/pasture (10.6 percent) and deciduous forest (8.9 percent). The areas surrounding the Survey Area are similar in composition, with a higher concentration of developed land to the northeast in Galion, Ohio (Figure 2, in Appendix A). Table 1 summarizes the land use types that occur within the Survey Area.

Table 1: Summary of Land Use within the Survey Area

Land Use Type	Acres	Percentage of Survey Area
Cultivated Crops	1,247.24	75.44%
Hay/Pasture	175.59	10.62%
Deciduous Forest	147.41	8.92%
Developed, Open Space	53.19	3.21%
Developed, Low Intensity	16.11	0.97%
Evergreen Forest	5.91	0.36%
Shrub/Scrub	5.78	0.35%
Herbaceous	0.95	0.06%
Woody Wetlands	0.91	0.06%
Open Water	0.20	0.01%
Developed, Medium Intensity	0.05	<0.01%
Total:	1,653.2	100%

3.1.2 USDA NRCS Web Soil Survey

The NRCS Web Soil Survey (USDA NRCS 2021a) is generated from the USDA-NRCS certified data (Figure 3 in Appendix A). The NRCS Soil Data Access (SDA) Hydric Soils List (USDA NRCS 2021b) contains a compilation of all map units with either a major or minor component that is at least in part hydric. As the list includes both major and minor (small) percentages for

map units, in some cases most of the map unit may not be hydric. The list is useful in identifying map units that may contain hydric soils. Table 2 summarizes the soil types and hydric rating of soils within the Survey Area.

The NRCS SSURGO digital data indicates that portions of 27 soil map units are located in the Survey Area. Seven of these soil map units are included on local and national hydric soil lists. Soil identified as hydric within the Survey Area in bold in Table 2.

Table 2: Summary of Soils within the Survey Area

Soil Map Unit Name	Soil Map Unit Symbol	Hydric Rating	Acres
Amanda silt loam, 2 to 6 percent slopes	AdB	5	18.5
Amanda silt loam, 6 to 12 percent slopes, eroded	AdC2	5	79.4
Amanda silt loam, 12 to 18 percent slopes, eroded	AdD2	3	38.0
Bennington silt loam, 0 to 2 percent slopes	BeA	8	313.6
Bennington silt loam, 2 to 6 percent slopes	BeB	6	79.3
Carlisle muck, Central Ohio clayey till plain, 0 to 2 percent slopes	Cb	100	2.9
Centerburg silt loam, 2 to 6 percent slopes	Cen1B1	7	2.0
Condit silt loam, 0 to 1 percent slopes	Co	96	73.1
Cardington silt loam, 2 to 6 percent slopes	Crd1B1	7	404.4
Cardington silt loam, 6 to 12 percent slopes	Crd1C1	4	5.0
Cardington silt loam, 6 to 12 percent slopes, eroded	Crd1C2	4	113.1
Gallman silt loam, loamy substratum, 2 to 6 percent slopes	GaB	2	40.5
Gallman silt loam, loamy substratum, 6 to 12 percent slopes	GaC	0	38.6
Milford silty clay loam, 0 to 2 percent slopes	Mf	93	37.0
Millgrove silt loam	Mg	94	5.4
Pewamo silty clay loam, 0 to 1 percent slopes	Pm	91	34.1
Rittman silt loam, 2 to 6 percent slopes	RsB	0	115.8
Rittman silt loam, 6 to 12 percent slopes	RsC	0	1.4
Shoals silt loam, 0 to 2 percent slopes, occasionally flooded	Sh	8	4.4
Shoals silt loam, 0 to 2 percent slopes, occasionally flooded	Sj	8	1.4
Sleeth silt loam, loamy substratum, 0 to 3 percent slopes	SkA	2	153.1
Sloan silty clay loam, sandy substratum, occasionally flooded	So	97	24.4
Udorthents, loamy	Ud	0	0.1
Water	W	0	2.1
Westland clay loam	We	93	11.0
Wooster silt loam, 6 to 12 percent slopes, eroded	WsC2	4	8.3
Wooster silt loam, 12 to 18 percent slopes, eroded	WsD2	4	11.1
Total:			1,653.3

Bold – listed as hydric on local and national hydric soil lists.

3.1.3 USGS 7.5-minute Topographic Maps & Geology

The USGS topographic map indicates the Survey Area crosses a generally flat area that slopes to the west (Figure 1.2 in Appendix A). According to the OEPA Physiographic Regions of Ohio, the Survey Area is located within the Central Ohio Clayey Till Plain and the Galion Glaciated Low Plateau Physiographic Regions of Ohio. The Central Ohio Clayey Till Plain is characterized by well-defined moraines with intervening flat-lying ground moraine and intermorainal lake basins. A few large streams span the region with limited sand and gravel outwash. Elevation ranges from 700 to 1150 feet with moderate relief (100'). The Galion Glaciated Low Plateau is characterized by rolling uplands that are mantled with thin to thick drift. Elevation ranges from 800 to 1400 feet with moderate relief (100').

3.1.4 USGS National Hydrography Dataset

The NHD represents the water drainage network of the United States with features such as rivers, streams, canals, lakes, ponds, coastline, dams, and streamgages. The NHD is updated and maintained through partnerships with states and other collaborative bodies. The NHD dataset (Figure 4 in Appendix A) shows 13 streams cross the Survey Area, two of which are named. The named streams include Flat Run and Mud Run. Mud Run is a tributary to Flat Run and is designated as a warmwater habitat based on the 1978 OEPA water quality standards. Flat Run is a tributary to the Olentangy River and designated as a warmwater habitat based on the results of a biological field assessment performed by the OEPA (OEPA, 2017)

3.1.5 USFWS National Wetlands Inventory

The digital format NWI maps were developed by USFWS in collaboration with the USGS, Water Resource Division using data from 1987 and are periodically updated. The maps are prepared primarily by stereoscopic analysis of high-altitude aerial photographs to produce reconnaissance level information on the location, type and size of wetlands and deepwater habitats. All wetlands are identified based on vegetation, visible hydrology, and geography in accordance with the Cowardin System (Cowardin et al, 1979). According to the USFWS, the aerial photographs reflect conditions during the year and season they were taken; however, there is a margin of error inherent in the use of aerial photographs to delineate wetlands. Therefore, wetland boundaries established through interpretation of aerial photographs may be revised based upon detailed ground survey and historical analysis of an individual site.

The NWI map (Figure 4 in Appendix A) indicates four Freshwater Ponds, 11 Freshwater Emergent Wetlands, and five Freshwater Forested/Shrub Wetlands are located within the Survey Area (USFWS, 2021).

3.1.6 FEMA Flood Insurance Rate Map (FIRM)

The FEMA FIRM (FEMA, 2009; Figure 3 in Appendix A) depicts no floodplains or floodways within the Survey Area.

3.2 Site Investigation Results

A total of 26 wetlands, 19 surface waters, and five constructed ponds were delineated. The wetlands, surface waters and other waterbodies are described below, summarized in Table 3 and Table 4, respectively, and are mapped on Figure 5 in Appendix A. Wetland Determination Data Forms from the applicable Regional Supplement were completed for each wetland and are included in Appendix B. Natural color photographs of sample plots, wetland and surface waters, and other identified features are included in Appendix C. ORAM datasheets were completed for each wetland and are included in Appendix D. QHEI and HHEI forms were completed for each waterway and are included in Appendix E. Locations of sample plots, wetland, surface water and other waterbody boundaries, and other identified features were surveyed using a sub-meter accurate Global Positioning System (GPS) unit.

3.2.1 Wetlands

A total of 26 wetlands, totaling approximately 51.74 acres, were delineated within the Survey Area. Category 1 wetlands accounted for 35.85 acres of wetland and Category 2 wetlands accounted for 15.89 acres of wetland. Relatively few wetlands were identified given the size of the Survey area, and no high-quality Category 3 wetlands were documented within the Survey Area. A large portion of the wetlands identified are either located within forest habitat or along field edges. Please refer to Appendix F for additional information collected for each wetland.

Table 3: Summary of Wetlands and Other Waters within the Survey Area

Wetland Number ^a	Wetland Type ^b	ORAM Score	ORAM Category ^c	Area of Wetland Delineated in Survey Area (acres)	Figure 5 Page
W-1	PEM	16	Category 1	5.31+	6
W-2	Mosaic	47.5	Category 2	3.96+	6
W-3	PEM/PFO	58	Category 2	3.63+	5
W-4	PEM/PFO	51	Category 2	1.34+	5
W-5	PEM	55.5	Category 2	0.10+	6
W-6	PEM/PSS	23	Category 1	0.21	5
W-7	PFO	54.5	Category 2	0.59	5
W-8	PEM	22.5	Category 1	0.29	6
W-9	PEM/PFO	48.5	Category 2	0.43	5
W-10	PEM/PFO	40	Category 2	2.67+	2, 5
W-11	PFO	50	Category 2	0.07	2
W-12	PEM	11	Category 1	0.67	2
W-13	Farmed	13	Category 1	12.79+	2
W-14	PEM	27	Category 1	12.03	5
W-15	PEM	19	Category 1	0.09+	2
W-16	PEM	25	Category 1	2.70	8
W-17	PEM	23.5	Category 1	0.68+	10
W-18	PEM	28.5	Category 1	0.11+	10
W-19	PEM	20.5	Category 1	0.07	4
W-20	PEM	23.5	Category 1	0.10	5
W-21	PEM	42.5	Category 2	0.21	5
W-22	PEM	28	Category 1	0.30	4
W-23	PEM/PFO	49	Category 2	2.74	4
W-24	PEM/PSS	12.5	Category 1	0.43	8
W-25	PEM/PSS	31	Category 2	0.15	8
W-26	PEM	23	Category 1	0.09+	7
Constructed Pond 1	--	--	--	0.29	2
Constructed Pond 2	--	--	--	0.37	2
Constructed Pond 3	--	--	--	0.24	3
Constructed Pond 4	--	--	--	0.32	3
Constructed Pond 5	--	--	--	0.29	4
Total:				51.74	

^a Assigned by Burns & McDonnell staff during the site investigation; W = Wetland

^b Classification follows the Federal Geographic Data Committee, 2013; PEM = Palustrine Emergent, PSS= Palustrine Scrub Shrub, PFO = Palustrine Forested

^c ORAM Categories: Category 1 = 0-29.9; Category 1 or 2 Gray Zone = 30-34.9; modified Category 2 = 35-44.9; Category 2 = 45-59.9; Category 2 or 3 Gray Zone = 60-64.9; Category 3 = 65-100

-- = No Value

+ = Area extends outside the Survey Area

Constructed Ponds

A total of five constructed ponds were identified within the Survey Area. These ponds are used as either a water source for agricultural crops or livestock. These ponds appear to be manmade and constructed in upland soils, and therefore, are not considered wetlands. A historic aerial review indicated the following;

- Constructed Pond 1 – constructed between 1995 and 2004.
- Constructed Pond 2 – constructed between 1959 and 1980.
- Constructed Ponds 3 and 4 - constructed prior to 1959, the earliest available aerial imagery.
- Constructed Pond 5 – constructed between 1980 and 1995.

It is our professional opinion that these ponds are not WOTUS and not regulated by the USACE or State. However, the USACE and/or OEPA makes the final jurisdiction determination.

3.2.2 Streams

Ephemeral (S-1a, S-1b, S-1c, S-2, S-3, S-5, S-6, S-7, S-8, S-9, S-10, S-11, S-12, S-13, S-14, S-15, S-16, S-17, S-19)

A total of 19 ephemeral streams, totaling approximately 16,619 feet in length, were delineated within the Survey Area. Ephemeral streams typically have a defined bed and bank and surface water flowing or pooling only in direct response to precipitation, such as rain or snow fall.

Common riparian vegetation along these streams includes American beech, musclewood (*Carpinus caroliniana*), silver maple, shagbark hickory, American elm, kidney-leaf buttercup, reed canary grass, smooth brome, and tall goldenrod (*Solidago canadensis*).

Intermittent (S-4)

One intermittent stream, totaling approximately 2,744 feet in length, was delineated within the Survey Area. Intermittent streams typically have a defined bed and bank, discernable OHWM, and surface water flowing continuously during certain times of the year and more than in direct response to precipitation (e.g., seasonally when the groundwater table is elevated or when snowpack melts). Common riparian vegetation along this stream includes reed canary grass,

smooth brome, Virginia wild rye (*Elymus virginicus*), and agricultural row crops (corn and soybean).

Perennial (S-18) Mud Run

One perennial stream, totaling approximately 1,862 feet in length, was delineated within the Survey Area. Perennial streams have a defined bed and bank, discernable OHWM, and surface water flowing continuously during the entire year due to groundwater. Common riparian vegetation along this stream includes American elm, silver maple, green ash, reed canary grass, and smooth brome.

Table 4: Type and Length of Streams Delineated within the Survey Area

Stream Number^a	Flow Regime^b	Stream Name^c	QHEI/HHEI	Substrate	OHWB Width (feet)	OHWB Height (feet)	Surface Water Depth (feet)	Length of Delineated Stream in Survey Area (feet)	Figure 5 Page
S-1a	E	UNT Flat Run	70	Cobble, gravel, sand, silt, detritus	5	0.5	0.25	363	5
S-1b	E	UNT Flat Run	64	Sand, silt, woody debris, detritus, muck	8	0.75	0.25	148+	5
S-1c	E	UNT Flat Run	55	Gravel, sand, silt detritus	8	1.5	0.5	425+	6
S-2	E	Unnamed Stream	65	Boulder slabs, cobble, gravel, silt, detritus	5	1	0.25	303+	5
S-3	E	Unnamed Stream	39	Silt, woody debris, detritus	4	1	0.25	140+	5
S-4	I	UNT Flat Run	40	Silt, clay	5	5	0.25	2,744+	5
S-5	E	UNT Flat Run	64	Cobble, gravel, sand silt	5	2	0.25	757	5
S-6	E	UNT Flat Run	50	Cobble, gravel, sand, silt, detritus	4	1.5	0.25	422	5
S-7	E	UNT Flat Run	49	Silt, woody debris, detritus	8	2	0.5	2,915+	8
S-8	E	UNT Flat Run	37	Silt	4	0.5	0.1	242+	8
S-9	E	UNT Flat Run	64	Cobble, gravel, silt, detritus	5	4	0.25	2,146+	8
S-10	E	UNT Flat Run	27	Silt	4	0.5	0.1	322	8

S-11	E	UNT Flat Run	63	Cobble, gravel, silt	5	3	0.5	1,319+	8
S-12	E	UNT Flat Run	42	Silt	5	0.75	0.2	162	8
S-13	E	Unnamed Stream	12	Silt	12	5	0.75	1,757	3
S-14	E	UNT Mud Run	70	Boulder, cobble, gravel, silt, woody debris	10	3	0.5	3,119+	3
S-15	E	UNT Mud Run	69	Cobble, gravel, silt, woody debris	6	2	0.5	369+	3
S-16	E	UNT Mud Run	43	Silt, woody debris	3	1.5	0.1	693	3
S-17	E	UNT Mud Run	63	Cobble, gravel, silt	4	3	0.2	782+	3
S-18	P	Mud Run	65	Gravel, sand, silt	25	6	2	1,862+	3
S-19	E	Unnamed Stream	36	Boulder, cobble, gravel, silt	4	3	0	235	11
Total:								21,225	

a

Assigned by Burns & McDonnell staff during the site investigation; S = stream

^b Stream name follows USGS topographic map, NHD, or state/local data source; P = Perennial, I = Intermittent, E = Ephemeral

^c UNT = Unnamed Tributary

-- = No Value

+ = Area extends outside the Survey Area

4.0 SUMMARY

Burns & McDonnell conducted a wetland delineation of the Survey Area to identify wetlands and other waterbodies. The Survey Area is dominated by cultivated crops with smaller portions of forested habitat. A total of 26 wetlands, 19 surface waters, and five constructed ponds were identified. Wetlands total approximately 51.74 acres, were delineated within the Survey Area. Category 1 wetlands accounted for 35.85 acres of wetland and Category 2 wetlands accounted for 15.89 acres of wetland. Relatively few wetlands were identified given the size of the Survey area, and no high-quality Category 3 wetlands were documented within the Survey Area. A large portion of the wetlands identified are either located within forest habitat or along field edges.

It is our professional opinion that all 26 wetlands and 19 surface waters are considered to be WOTUS, jurisdictional and regulated by USACE. It is our professional opinion that the five constructed ponds are not WOTUS and not regulated by the USACE or the State. Avoidance of wetlands, surface waters and other waterbodies should be considered in project planning.

Impacts to wetlands, streams and other waters are regulated by the USACE in compliance with Section 404 of the Clean Water Act and the OEPA in compliance with Section 401 of the Clean Water Act. If temporary or permanent fill will be placed in jurisdictional wetlands or streams (WOTUS) that exceed 0.1 acre of impact, a Pre-Construction Notification will need to be submitted to the USACE Huntington District to receive coverage under either a Nationwide Permit 51 (NWP), NWP 57, or NWP 14. General conditions of NWPs must be followed even if impacts are temporary or less than 0.1 acre. Additionally, if state regulated resources are confirmed and impacts are proposed, permits from the OEPA may also be necessary.

The findings of this investigation represent a study of the Survey Area and are the professional opinion of Burns & McDonnell. Findings can be site specific, and dependent on the season and conditions at the time of year. A USACE jurisdictional determination is recommended if impacts to wetlands, streams and/or other waterbodies are proposed to occur. The USACE determines the final jurisdictional status and boundaries of wetlands, streams and other waterbodies, and features may be regulated by USACE and/or the OEPA. Furthermore, the OEPA may request a

field visit to verify ORAM, QHEI and HHEI resource scores and make a final determination of quality of resources.

5.0 REFERENCES

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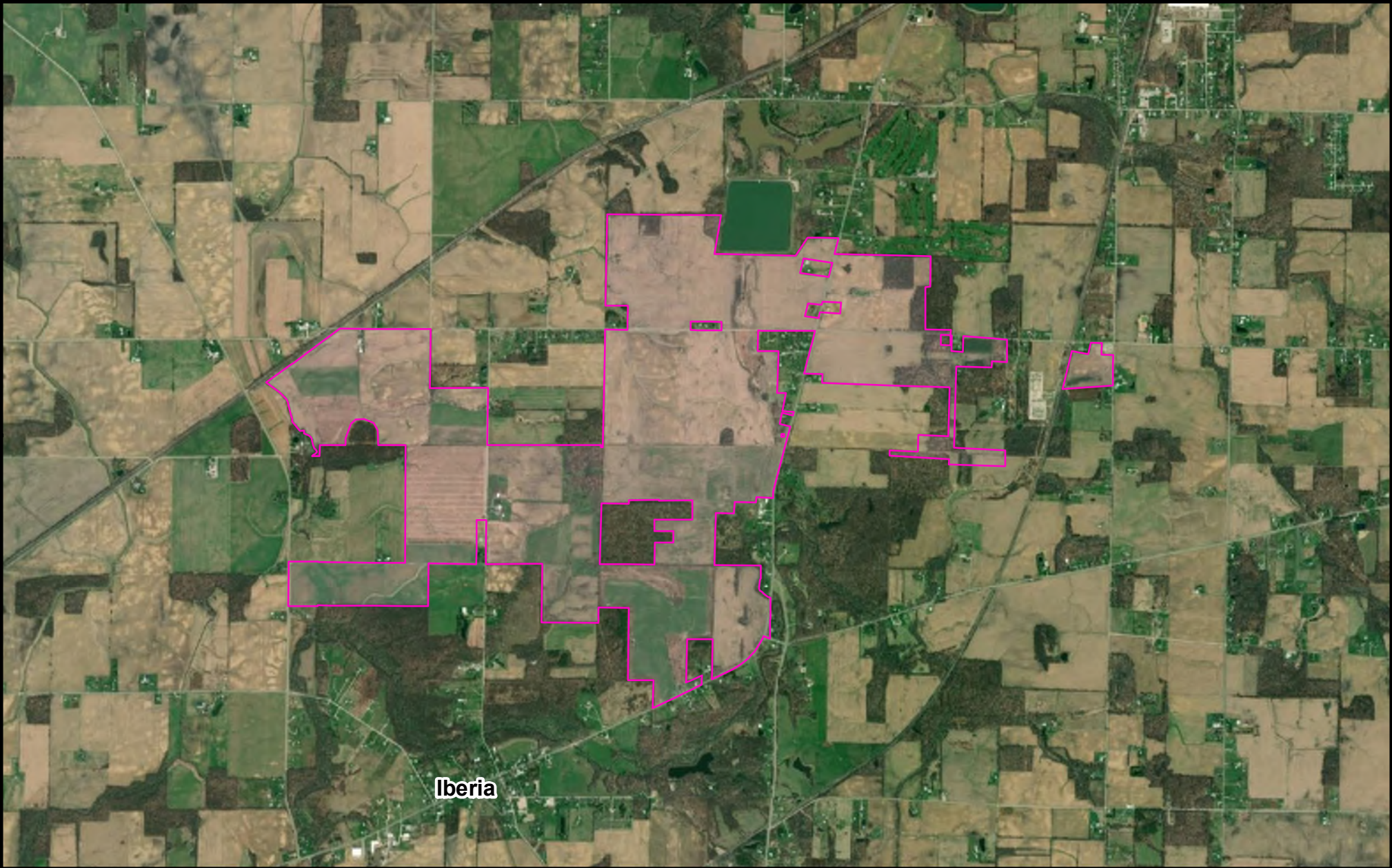
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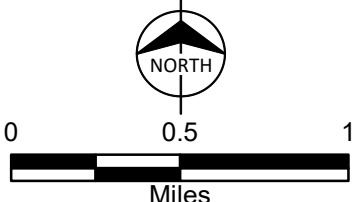


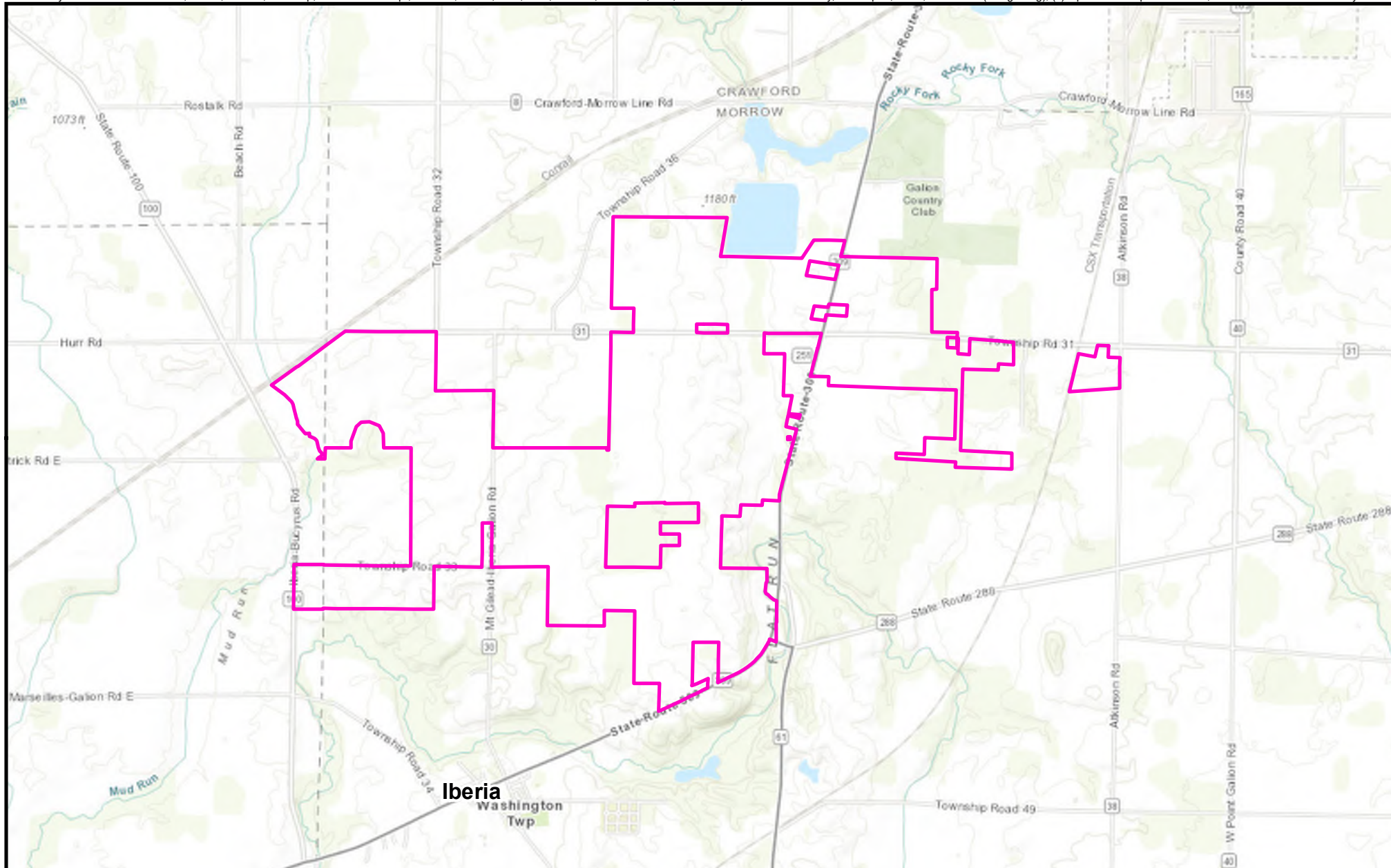
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Columbus, OH 43215
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APPENDIX A – FIGURES



 Project Area Boundary		 0 0.5 1 Miles		Figure A-1.1 Aerial Overview Map Blossom Solar Project Morrow and Marion Counties, Ohio
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 Project Area Boundary

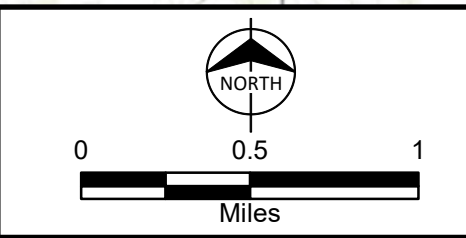
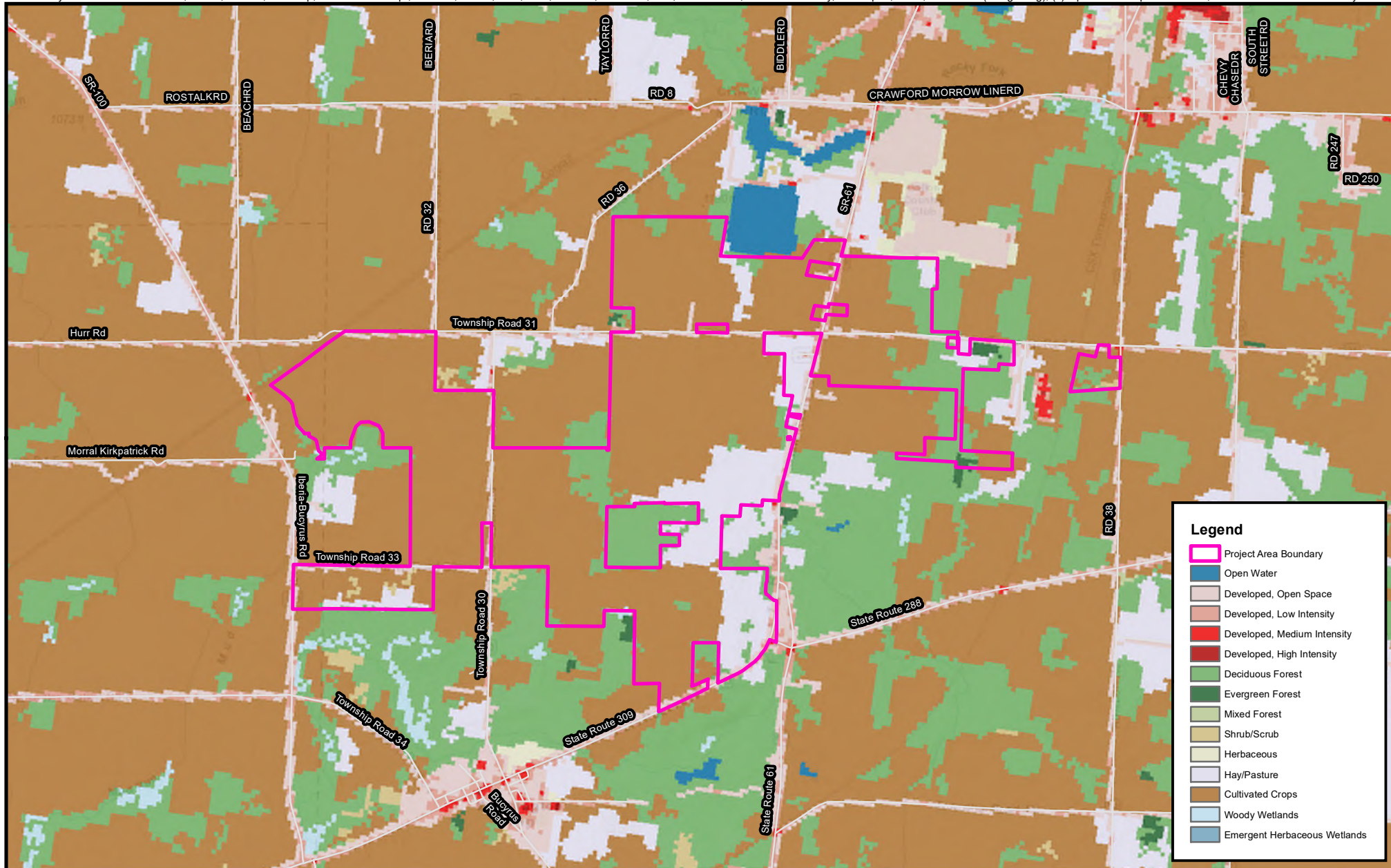


Figure A-1.2
 Project Overview Map
 Blossom Solar Project
 Morrow and Marion
 Counties, Ohio



Project Area Boundary

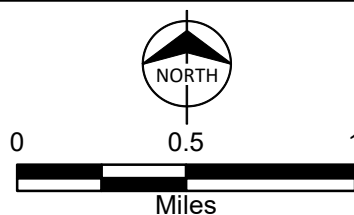
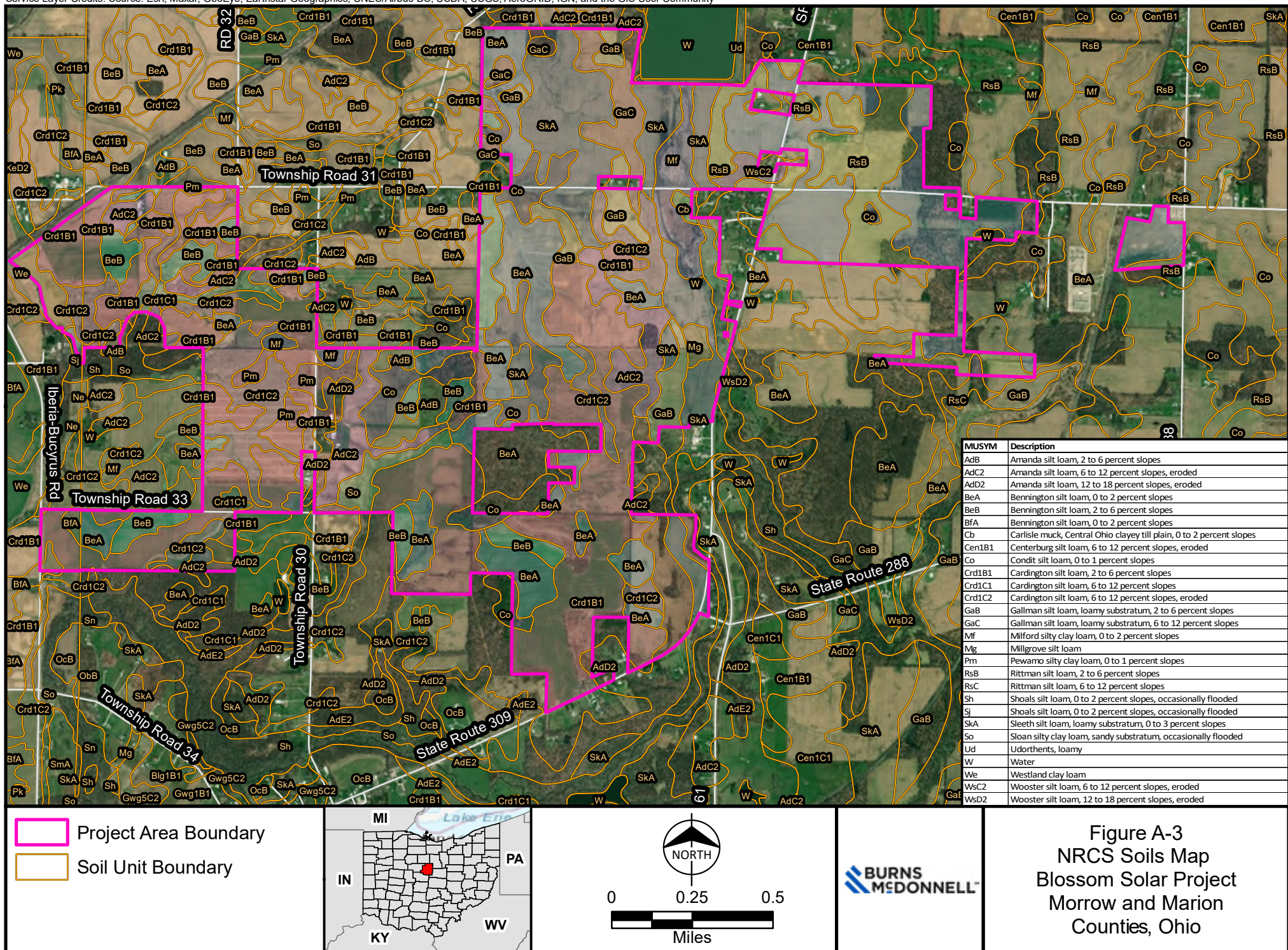


Figure A-2
 Land Use Map
 Blossom Solar Project
 Morrow and Marion
 Counties, Ohio



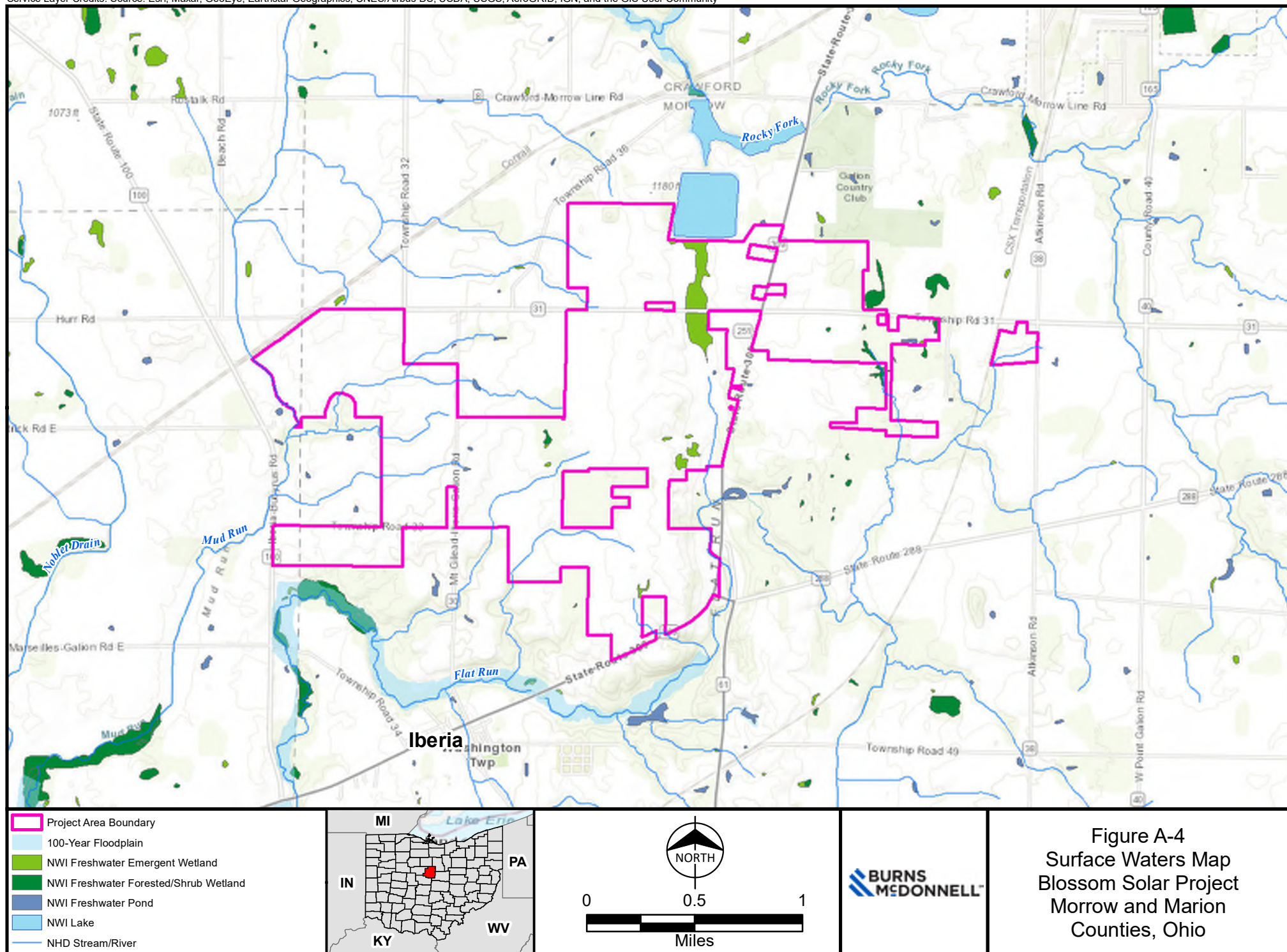
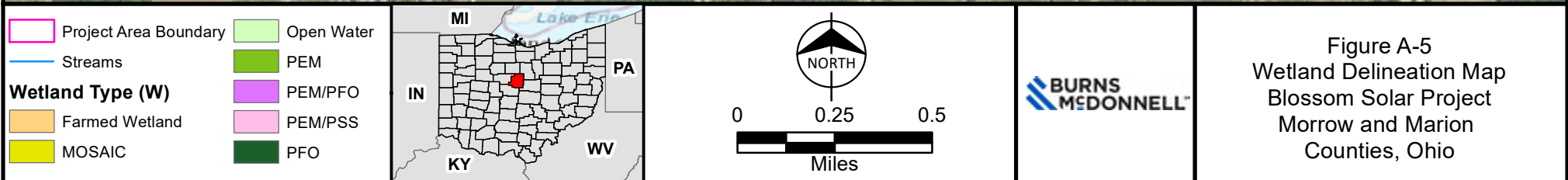
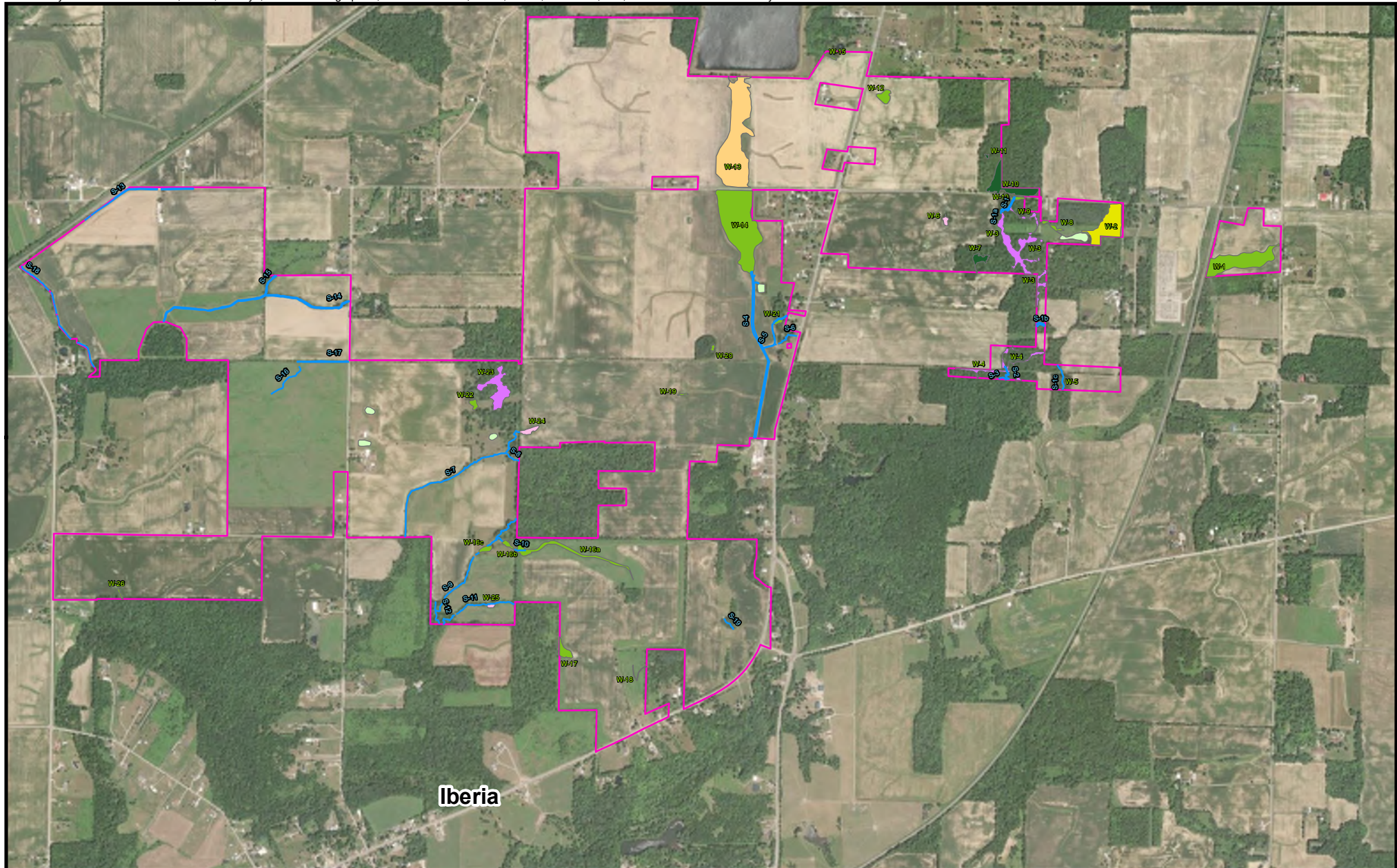
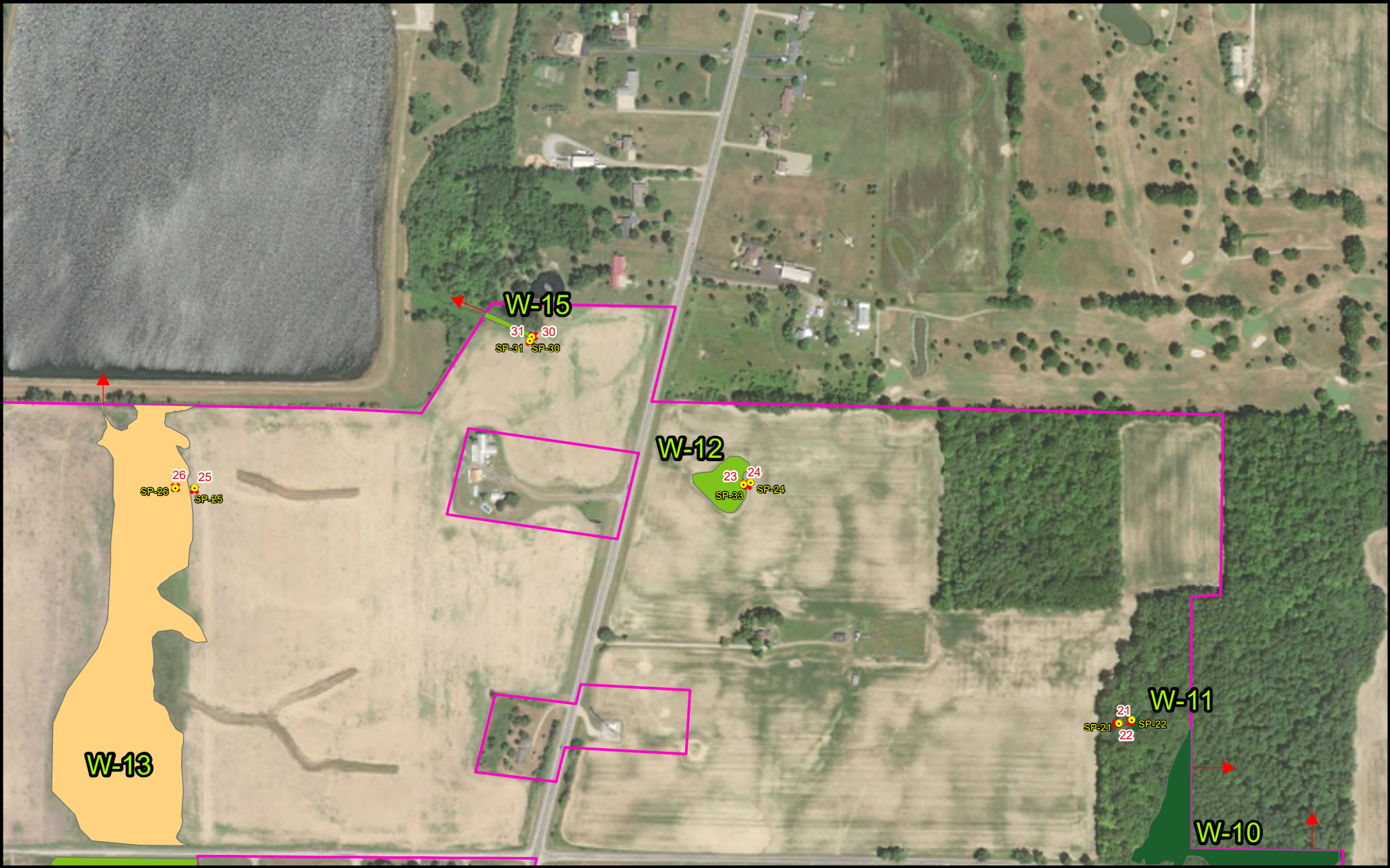


Figure A-4
 Surface Waters Map
 Blossom Solar Project
 Morrow and Marion
 Counties, Ohio

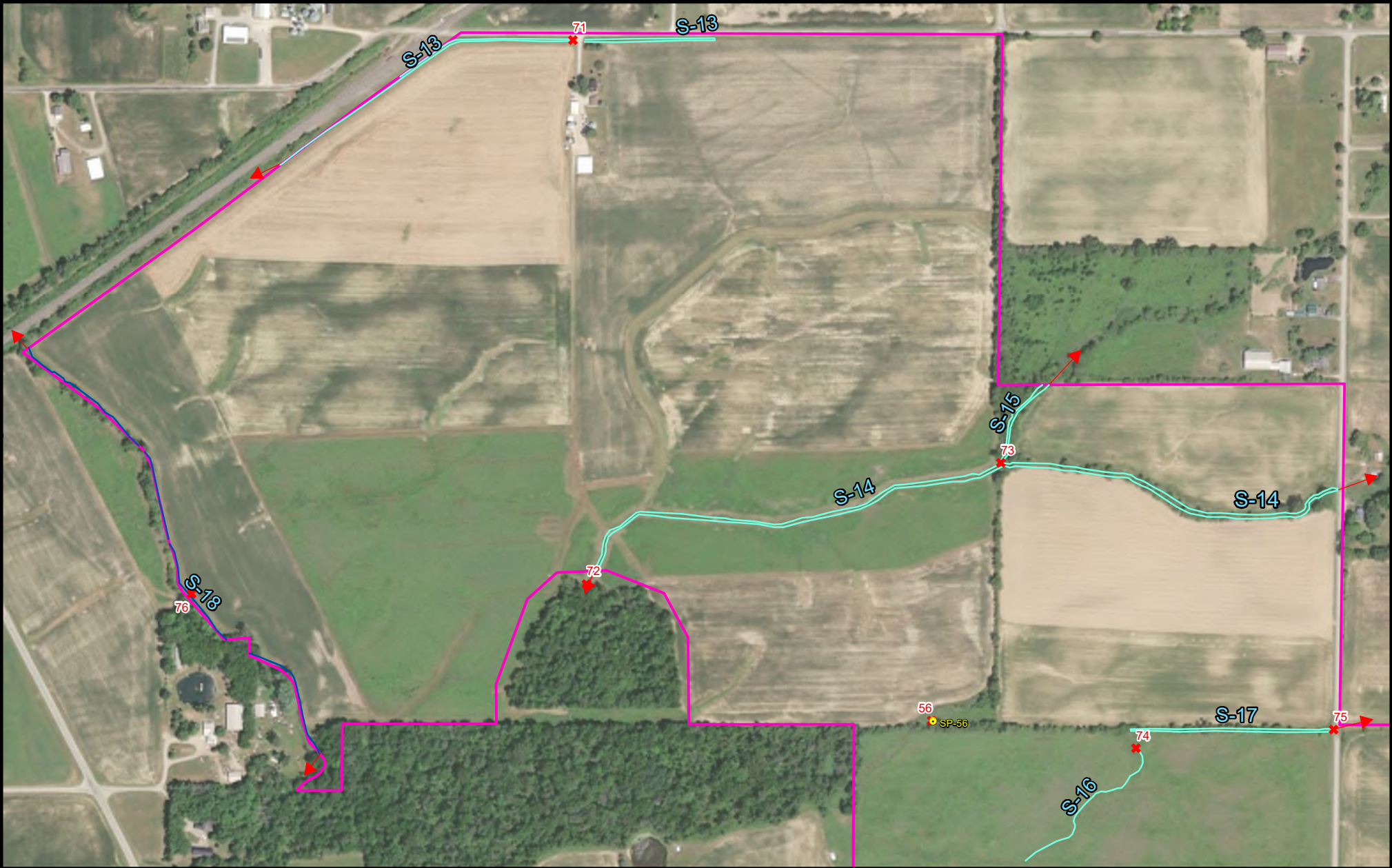




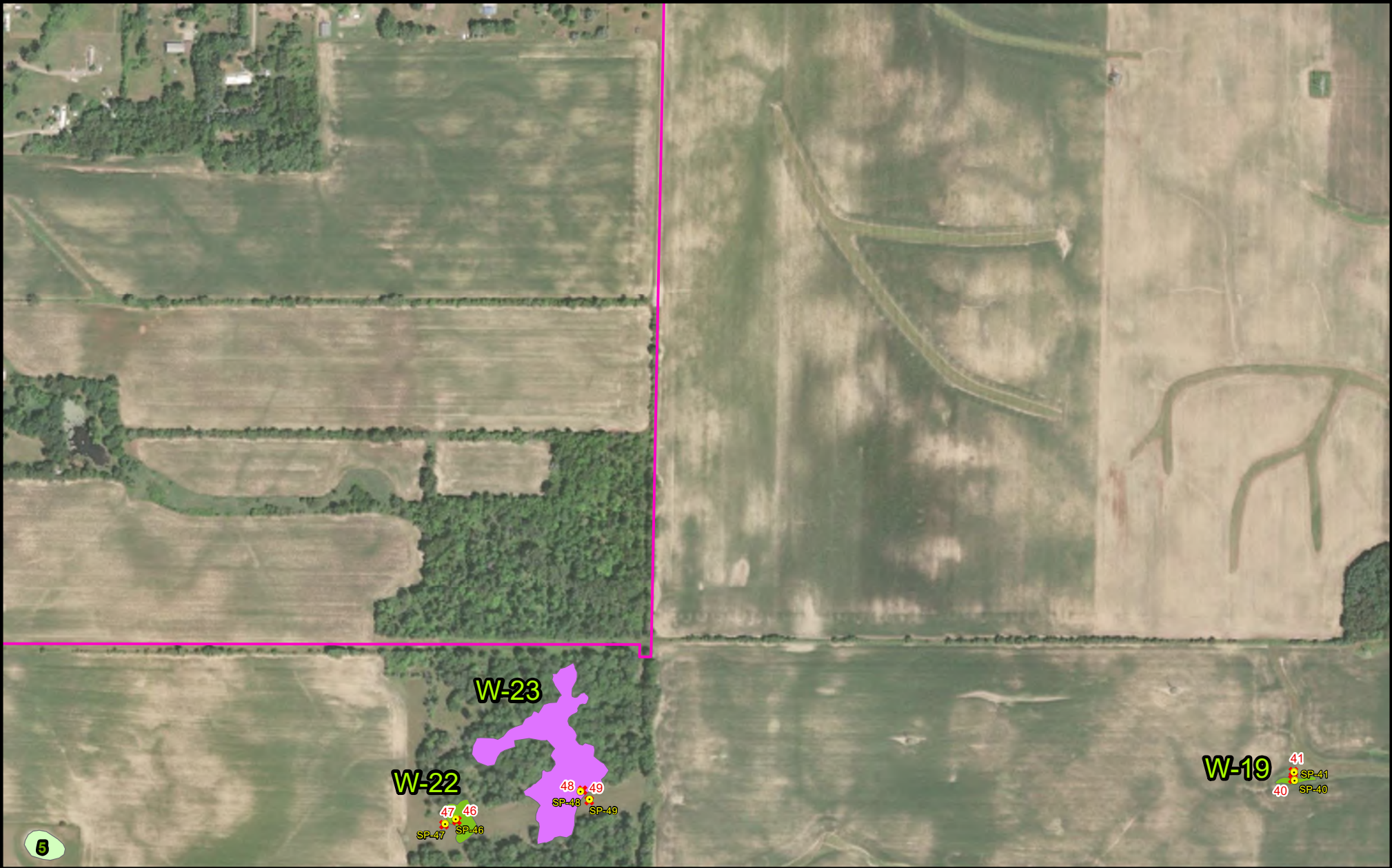
Project Area Boundary - Extension Line - Sample Plot (SP) - Photo Location Point Stream Type (S) - Ephemeral - Intermittent - Perennial	Wetland Type (W) - Farmed Wetland - MOSAIC - Open Water - PEM - PEM/PFO - PEM/PSS - PFO				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 1 of 11
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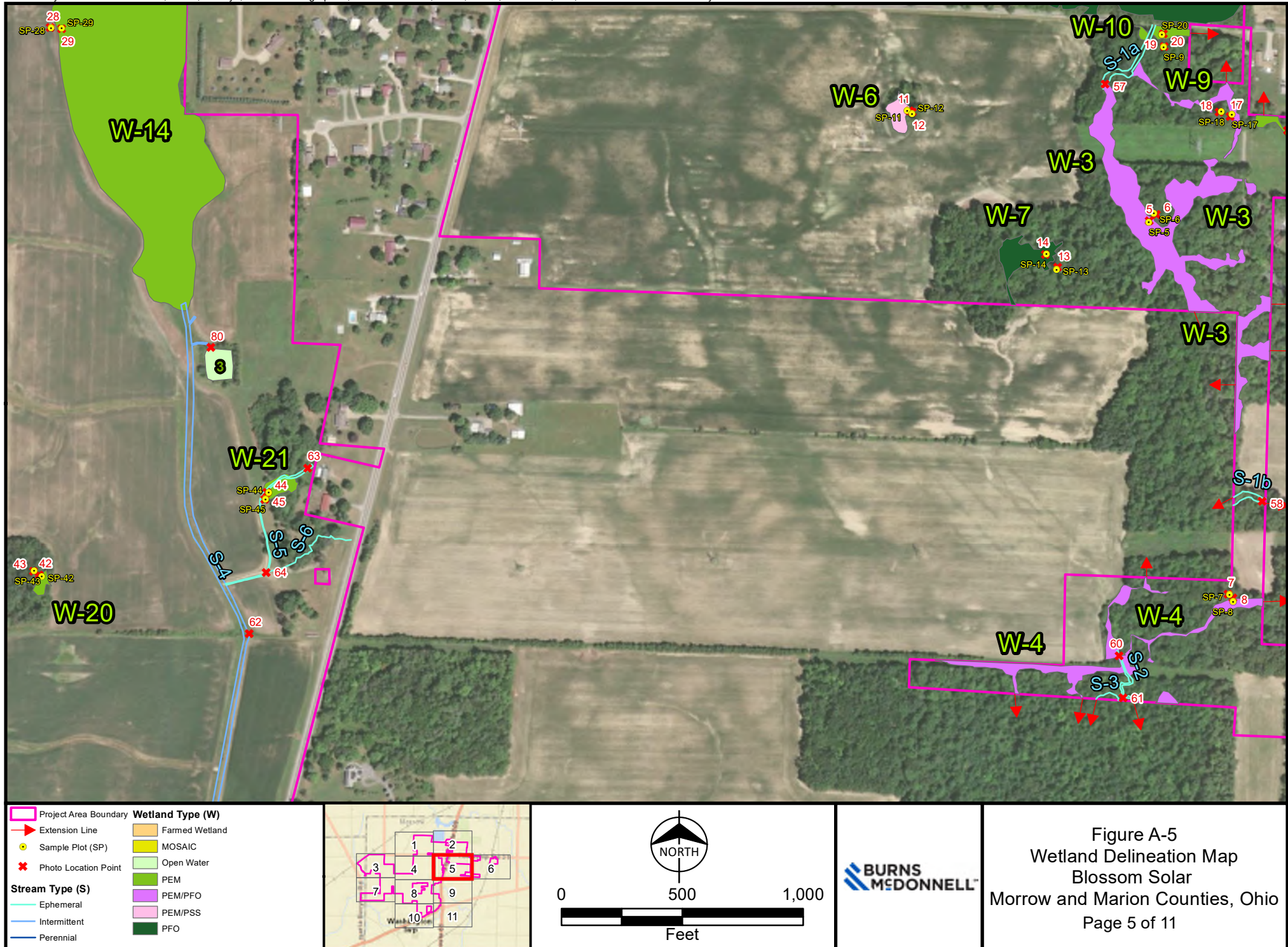
Project Area Boundary Extension Line Sample Plot (SP) Photo Location Point	Wetland Type (W) Farmed Wetland MOSAIC Open Water PEM PEM/PFO PEM/PSS PFO				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 2 of 11
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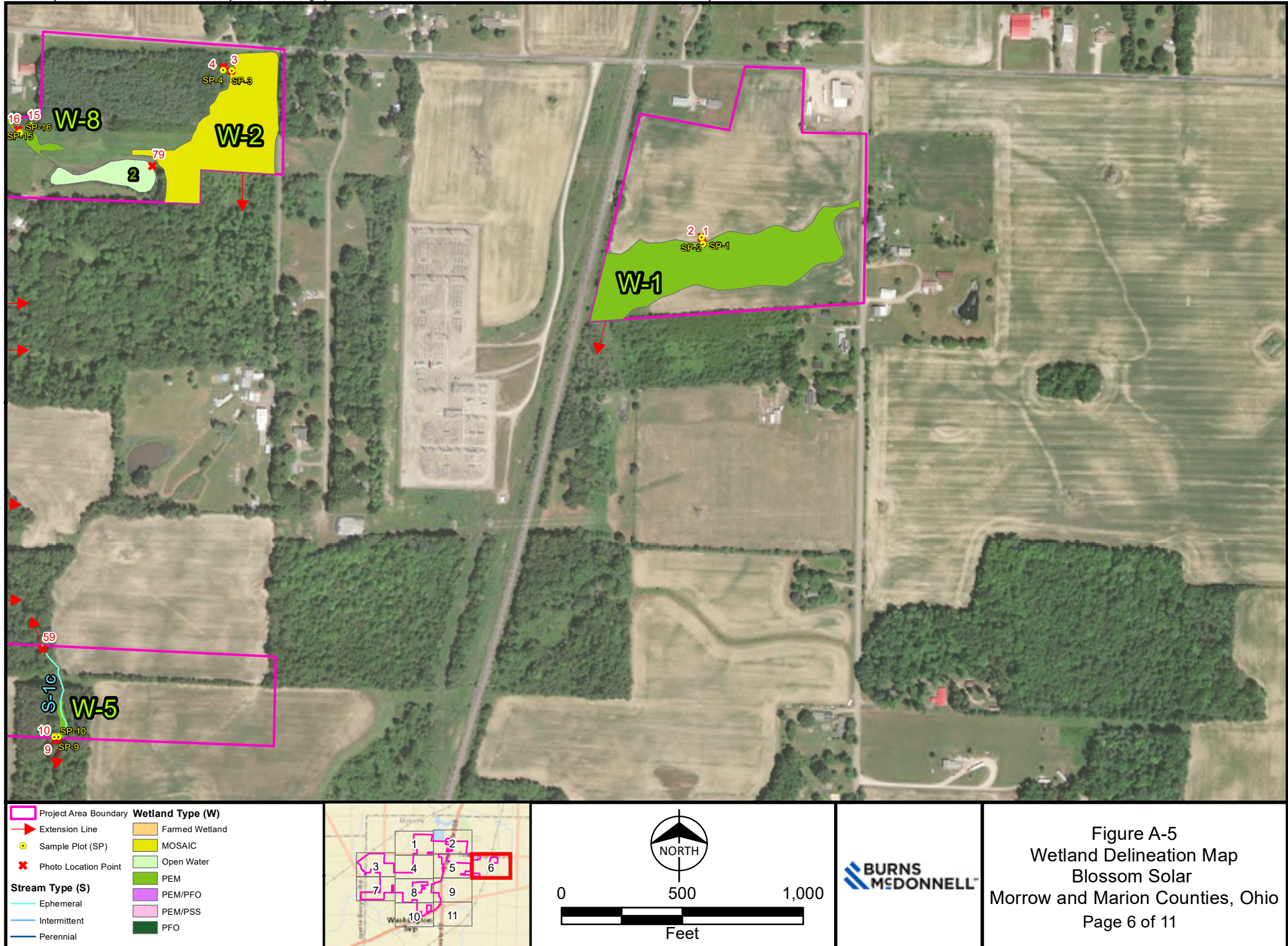


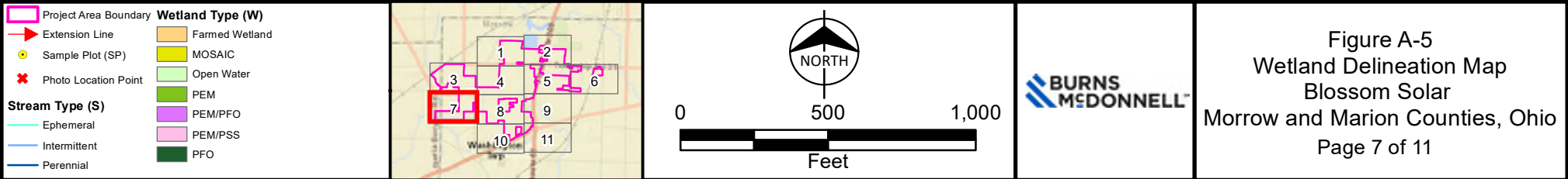
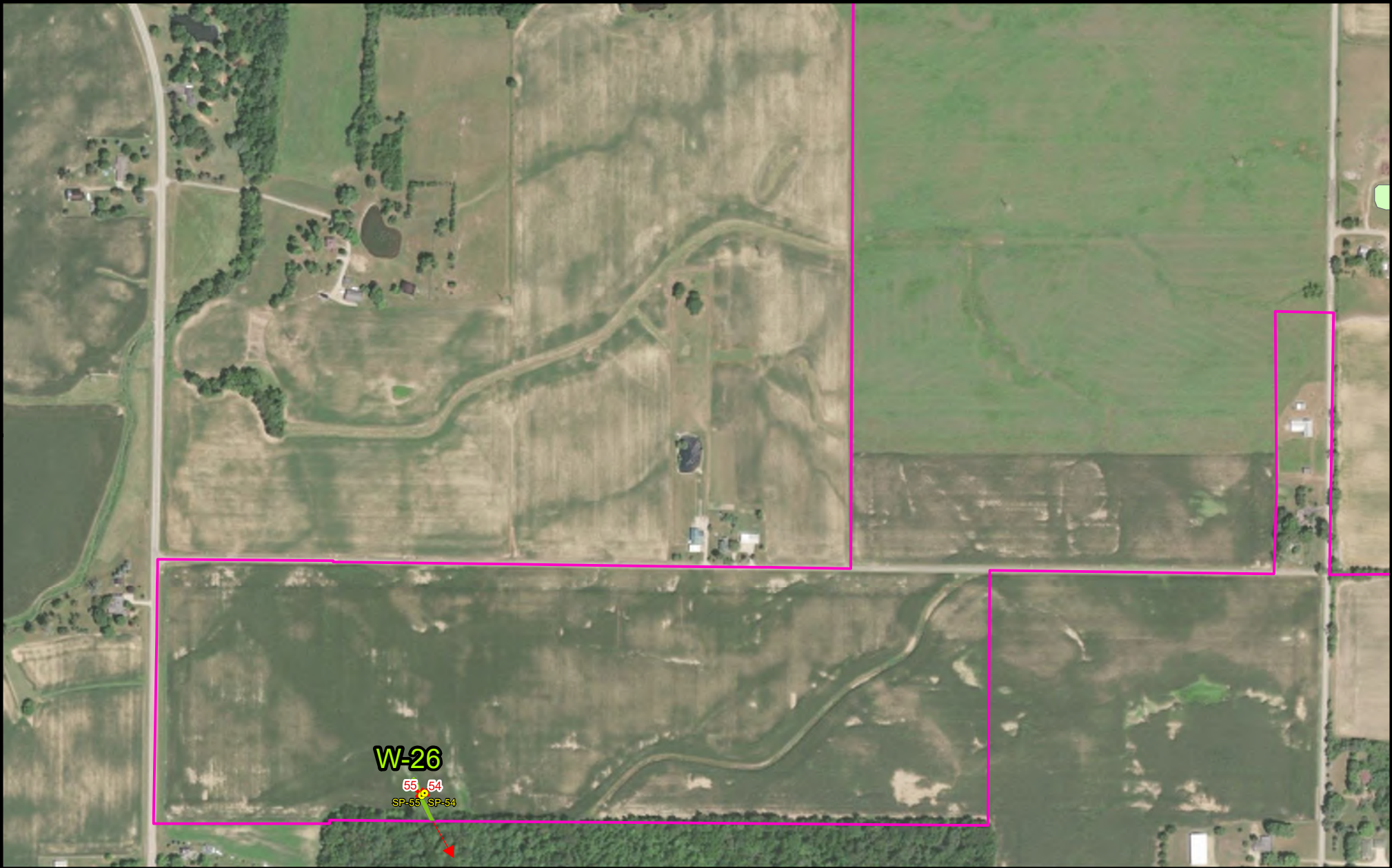
Project Area Boundary — Pink line Extension Line — Red arrow Sample Plot (SP) — Yellow circle Photo Location Point — Red 'x' Stream Type (S) — Cyan line (Ephemeral) — Blue line (Intermittent) — Dark blue line (Perennial)	Wetland Type (W) — Orange (Farmed Wetland) — Yellow (MOSAIC) — Light green (Open Water) — Green (PEM) — Purple (PEM/PFO) — Pink (PEM/PSS) — Dark green (PFO)				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 3 of 11
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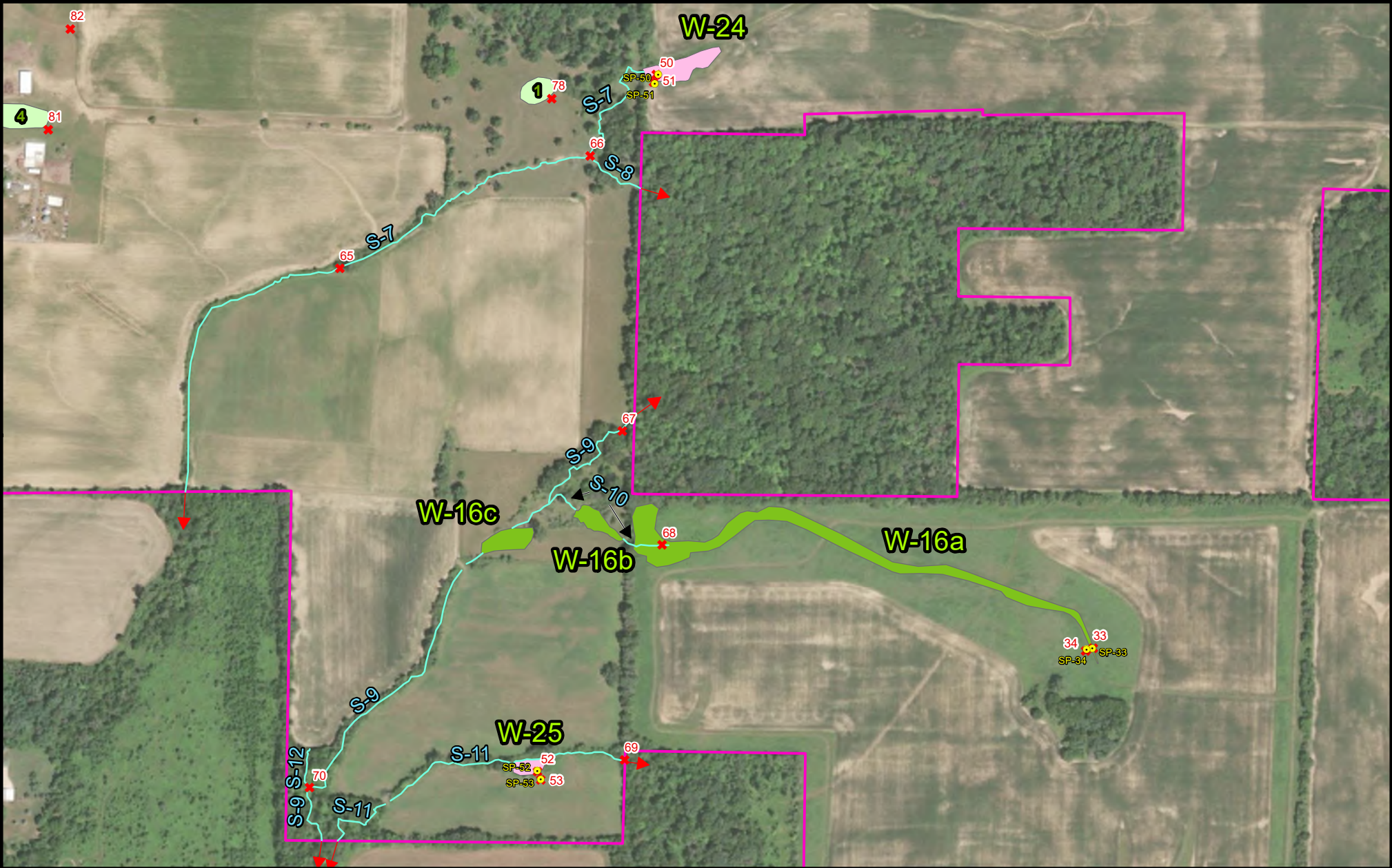


Project Area Boundary Extension Line Sample Plot (SP) Photo Location Point Stream Type (S) Ephemeral Intermittent Perennial	Wetland Type (W) Farmed Wetland MOSAIC Open Water PEM PEM/PFO PEM/PSS PFO				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 4 of 11
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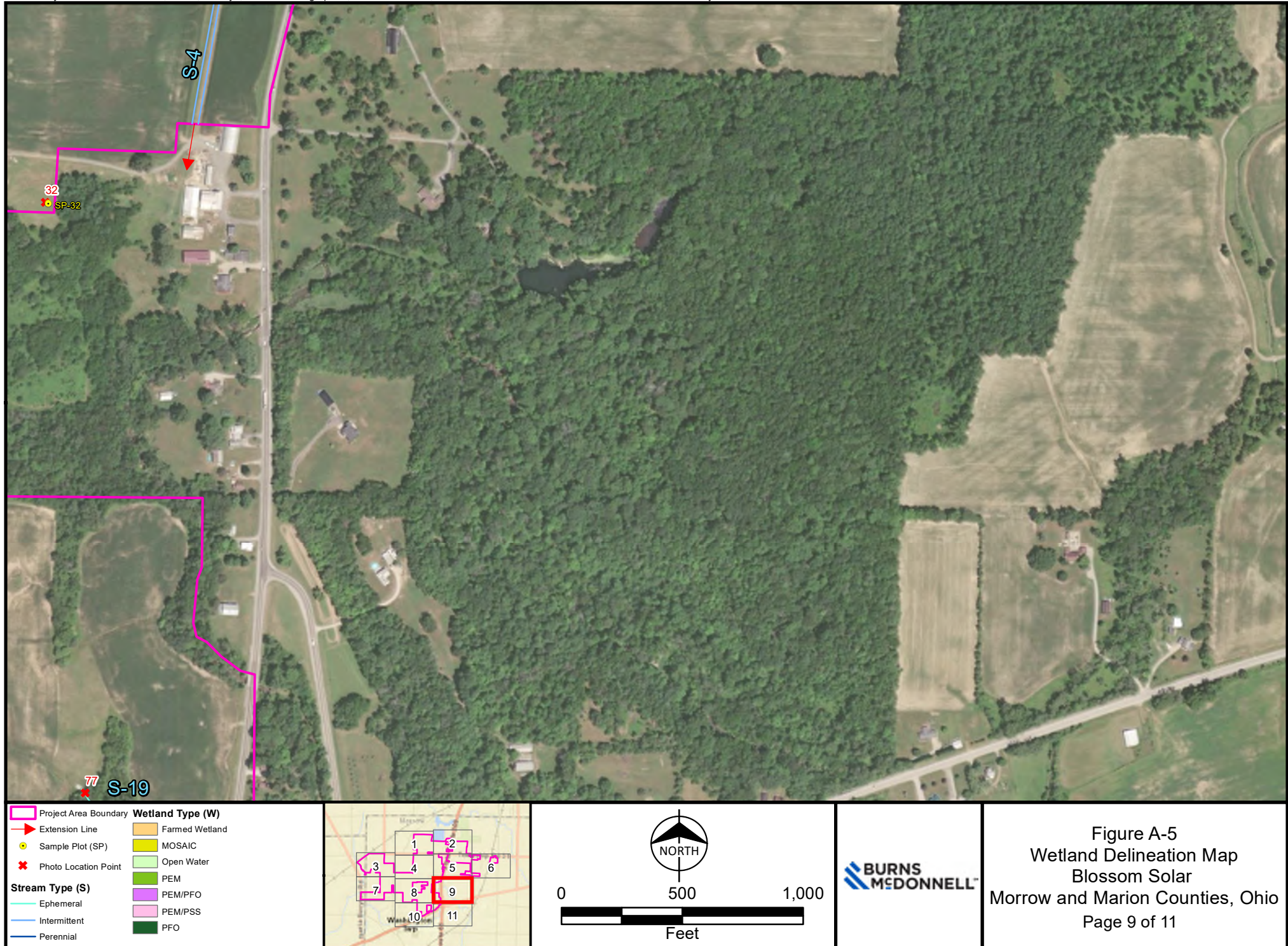


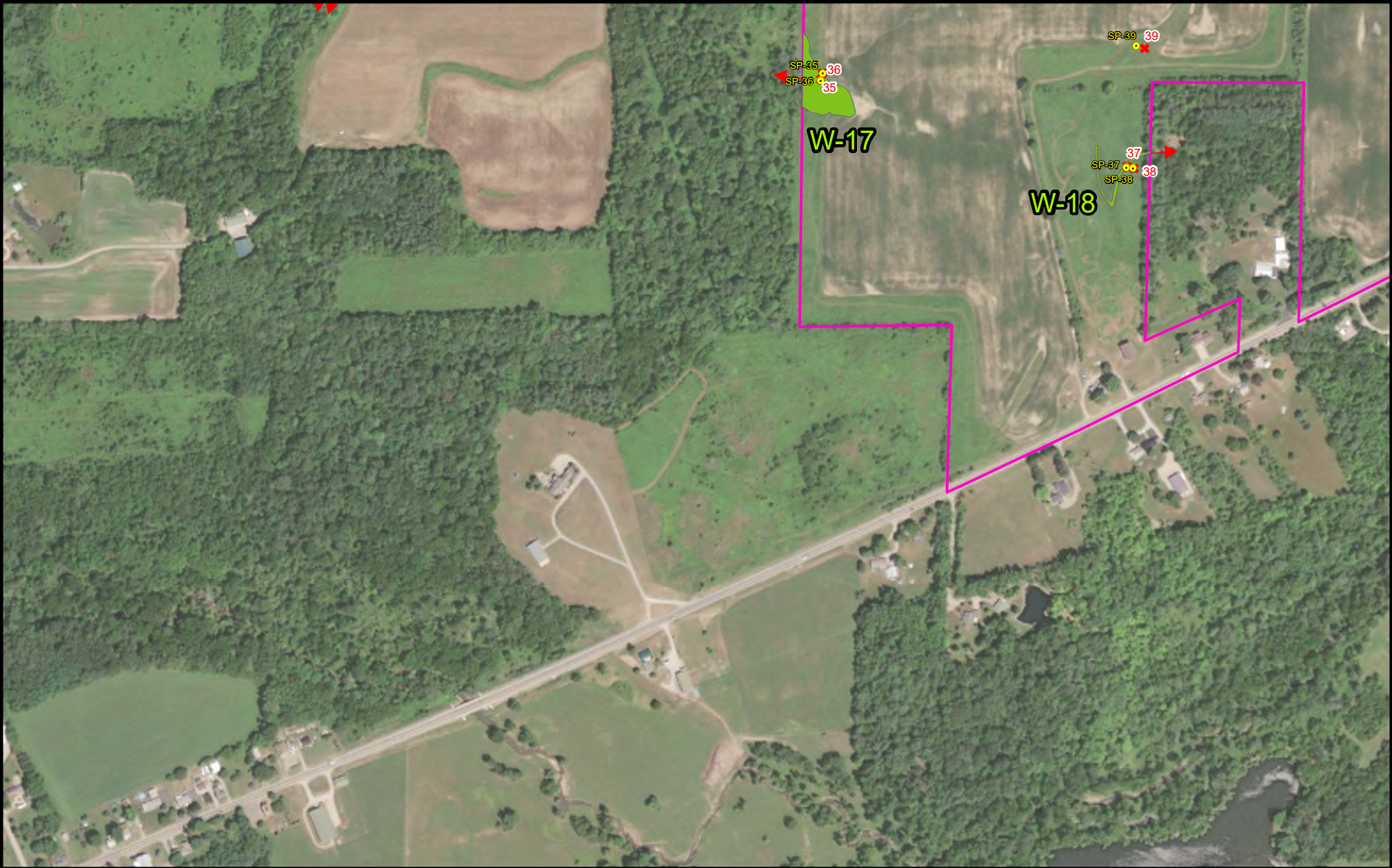






Project Area Boundary Extension Line Sample Plot (SP) Photo Location Point	Wetland Type (W) Farmed Wetland MOSAIC Open Water PEM PEM/PFO PEM/PSS PFO				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 8 of 11
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Project Area Boundary Extension Line Sample Plot (SP) Photo Location Point Stream Type (S) Ephemeral Intermittent Perennial	Wetland Type (W) Farmed Wetland MOSAIC Open Water PEM PEM/PFO PEM/PSS PFO				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 10 of 11
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Project Area Boundary - Extension Line - Sample Plot (SP) - Photo Location Point Stream Type (S) - Ephemeral - Intermittent - Perennial	Wetland Type (W) - Farmed Wetland - MOSAIC - Open Water - PEM - PEM/PFO - PEM/PSS - PFO				Figure A-5 Wetland Delineation Map Blossom Solar Morrow and Marion Counties, Ohio Page 11 of 11
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8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating



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Case No(s). 22-0151-EL-BGN

Summary: Application Application Exhibit 0 (Wetland Delineation Report)
electronically filed by Mr. Michael J. Settineri on behalf of Blossom Solar, LLC