MOTT MACDONALD

# Wetland Delineation and Stream Identification Report

Lightsource BP Bellflower Solar

December 2019

Public

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# Wetland Delineation and Stream Identification Report

## Lightsource BP Bellflower Solar
## Henry and Rush Counties, Indiana

December 2019

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# Issue and revision record

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## Tables



## Figures

# Acronyms

| | |
|---|---|
| CWA | Clean Water Act |
| DBH | diameter at breast height |
| DD | decimal degrees |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| HGM | hydrogeomorphic method |
| HUC | hydrologic unit code |
| IPaC | Information for Planning and Conservation |
| Lightsource | Light Source BP |
| NASIS | National Soil Information System |
| NHD | National Hydrography Dataset |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetlands Inventory |
| NWP | Nationwide Permit |
| OHWM | Ordinary High-Water Mark |
| PCN | Pre-Construction Notification |
| PEM | palustrine emergent wetland |
| PFO | palustrine forested wetland |
| PJD | Preliminary Jurisdictional Determination |
| Project | Light Source BP Bellflower Solar Project |
| PSA | Project Study Area |
| PSS | palustrine scrub-shrub wetland |
| QA/QC | quality assurance/quality control |
| RPW | Relatively Permanent Waters |
| RU | representative upland photo plot |
| RW | representative wetland photo plot |
| SC | stream crossing plot |
| SSURGO | Soil Survey Geographic database |
| TNW | Traditional Navigable Water |
| UNT | unnamed tributaries |

| | |
|---|---|
| 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 |
| WBD | Watershed Boundary Dataset |
| WD | wetland determination plot |
| WF | wetland boundary flag plot |
| WOUS | Waters of the United States |

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# 1 Introduction

## 1.1 General Overview and Applicant Information

Mott MacDonald, on behalf of Lightsource BP (Lightsource), conducted wetland and waterbody field delineation surveys from September 10, 2019 through September 11, 2019 to identify potential "Waters of the United States (WOUS)" as defined by the United States Army Corps of Engineers (USACE) (33 CFR 328.3) present within the environmental survey corridor developed for the proposed Bellflower Solar Facility Project (Project). The Project is located within Henry and Rush Counties, Indiana.

The findings included in this report are based on review of publicly available mapping and on-site pedestrian field surveys. Publicly available mapping includes 7.5-minute United States Geological Survey (USGS) topographic quadrangles, USGS National Hydrography Dataset (NHD) streams and waterbodies, USGS Watershed Boundary Dataset (WBD), United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey data, United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, and aerial photography.

The field survey area for the proposed Project consisted of approximately 1,337.7 acres. The field survey area for the proposed Project is referred to herein as the Project Study Area (PSA). The PSA was configured to capture all areas of potential ground disturbance and impacts to WOUS. Figure 1.1-1 provides an overview map of the Project location and configuration of the PSA on USGS topographic maps. Figure 1.1-2 illustrates the location of the PSA and proposed alignment on aerial imagery.

The remainder of this report describes the Project's purpose and need, location, and land requirements; and includes a discussion of the methods used to identify and delineate wetlands and waterbodies for the Project and provides the results of the wetland and waterbody delineation.

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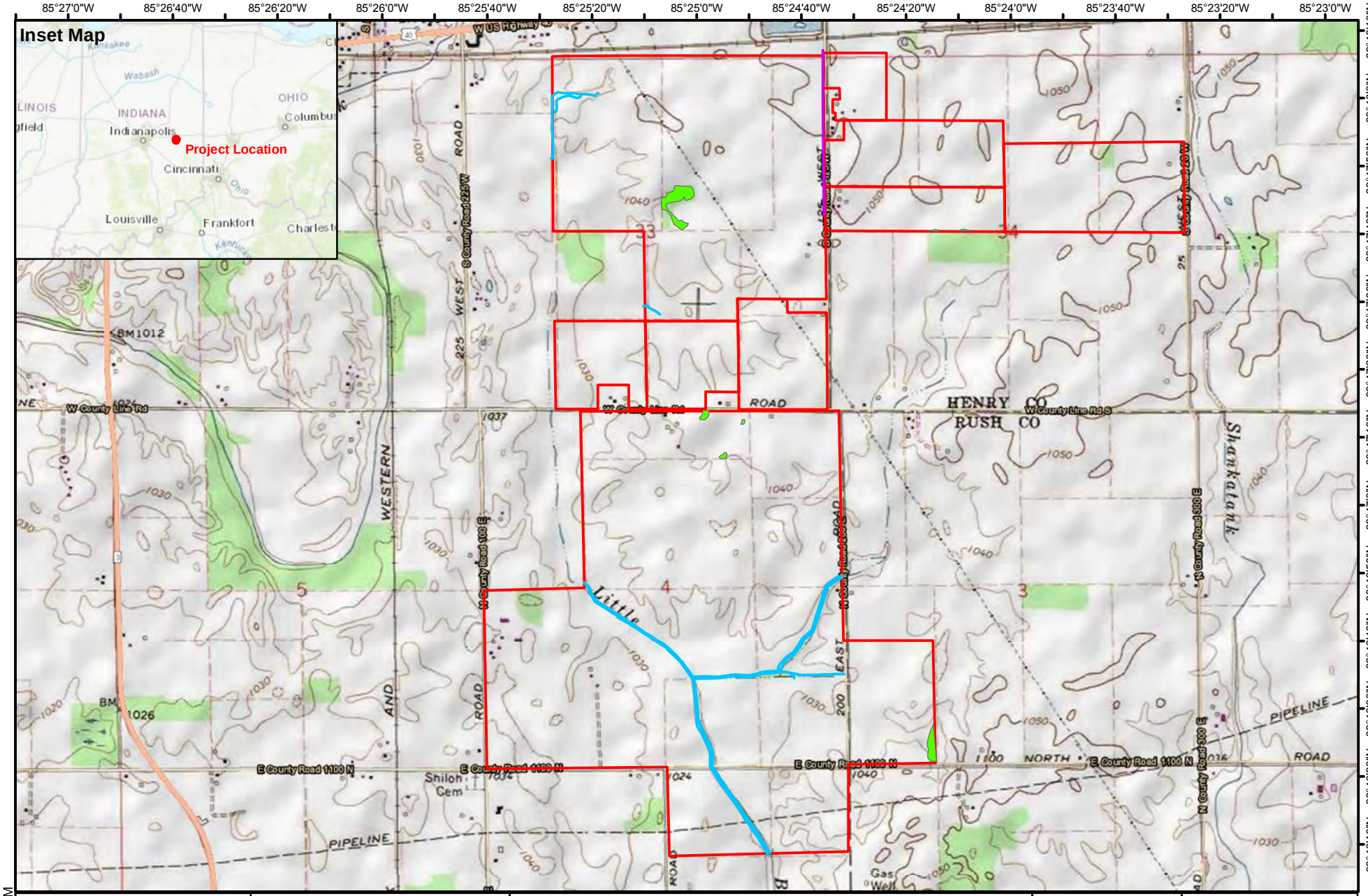


**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- ESRI World Transporation
- USGS 1:24k Topographic Quad

**Legend:**
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 1.1-1

PROJECT OVERVIEW FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 1,000 2,000 4,000

N W E S

ABSOLUTE SCALE: 1:24,000

REFERENCE SCALE: 1 IN = 2,000 feet

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Date: 10/15/2019

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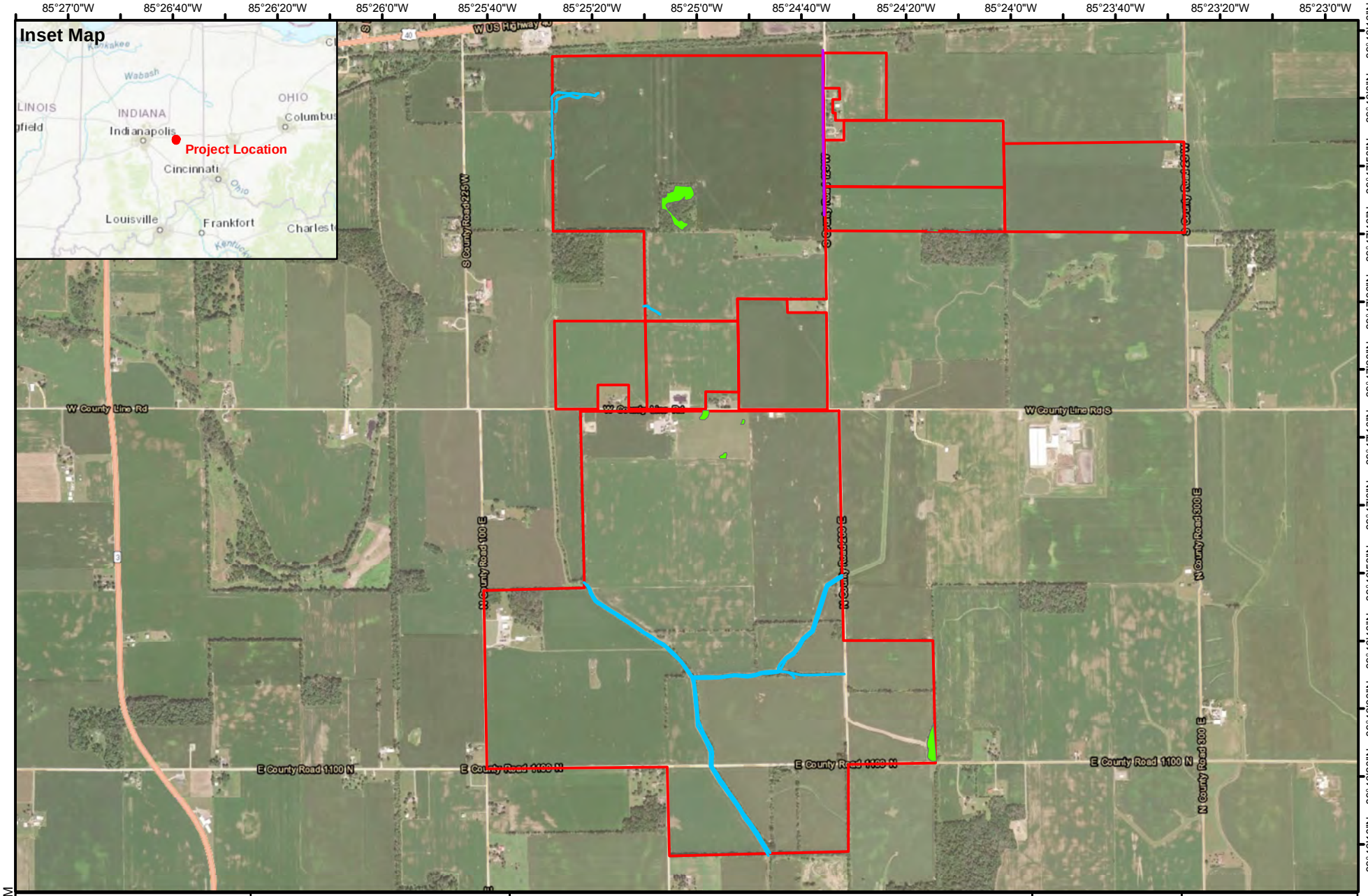


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**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 1.1-2

PROJECT OVERVIEW FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 1,000 2,000 4,000

N W E S

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# 2 Project Overview

## 2.1 Project Description

The PSA developed for the proposed Bellflower Solar site occupies approximately 1,337.7 acres of area in Henry (640.6 acres) and Rush (697.1 acres) Counties, Indiana. The PSA is made up of 18 separate parcels consisting of mostly agricultural land and is located within Spiceland and Franklin Townships in Henry County, and within Washington and Center Townships in Rush County, approximately 40 miles from Indianapolis, the state capital. Currently, the property is used for cattle grazing and other agricultural uses. A 138 kV electrical transmission line easement bisects the PSA.

The Project is located approximately 1,000 feet south of Interstate 40 and is accessible via South County Road. The approximate latitude and longitude for the center of the Project is 39.787230°N, -85.416231°W. The PSA is located within the USGS Dunreith, Indiana 7.5-minute topographic quadrangle.

Table 2.1-1 provides a summary for the private parcels within the PSA. Parcel information listed in Table 2.1-1 was obtained from Beacon public access portal for Henry County[1] and Rush County[2].

## 2.2 Purpose and Need

The purpose of this Project is to provide a safe and reliable solution for producers in Indiana and provide market access to growing renewable energy demand.

**Table 1.2-1: Parcel Information**

| No. | Acres[1] | County | Location | APN | Current Zoning | Property Owner (last updated) |
|---|---|---|---|---|---|---|
| 1 | 153.81 | Rush | 15N 10E – 4 | 700304200001000002 | Cash grain/general farm | McFarland Farms Holdings LLC (04/28/2017) |
| 2 | 109.13 | Rush | 15N 10E – 4, 9 | 700304300002000002 | Other agricultural use | Surface-Russell, Dorothy Elaine (04/28/2017) |
| 3 | 95.92 | Rush | 15N 10E – 4, 5, 9 | 700304300001000002 | Cash grain/general farm | Surface-Russell, Dorothy Elaine (04/28/2017) |
| 4 | 81.76 | Rush | 15N 10E – 4, 9 | 700304400004000002 | Ag – Vacant lot | Surface-Russell, Dorothy Elaine (04/28/2017) |
| 5 | 24.81 | Rush | 15N 10E – 4 | 700304400003000002 | Ag – Vacant lot | Surface-Russell, Dorothy Elaine (04/28/2017) |
| 6 | 15.27 | Rush | 15N 10E – 4 | 700304400001000002 | Ag – Vacant lot | McFarland Farms Holdings LLC (04/28/2017) |
| 7 | 40.54 | Rush | 15N 10E – 4 | 700304200003000002 | Ag – Vacant lot | McFarland Farms Holdings LLC (04/28/2017) |

[1] https://beacon.schneidercorp.com/Application.aspx?AppId=478&LayerId=6864&PageTypeId=2&PageID=3658

[2] https://beacon.schneidercorp.com/Application.aspx?AppId=470&LayerId=6610&PageTypeId=2&PageID=3605

| No. | Acres[1] | County | Location | APN | Current Zoning | Property Owner (last updated) |
|---|---|---|---|---|---|---|
| 8 | 40.62 | Rush | 15N 10E – 4 | 700304200002000002 | Other agricultural use | McFarland Farms Holdings LLC (04/28/2017) |
| 9 | 82.56 | Rush | 15N 10E – 4, 9 | 700309200001000002 | Ag – Vacant lot | Surface-Russell, Dorothy Elaine (04/28/2017) |
| 10 | 54.96 | Rush | 15N 10E – 3, 4 | 700303300002000015 | Ag – Vacant lot | Surface-Russell, Dorothy Elaine (04/28/2017) |
| 11 | 42.27 | Henry | 15N 10E – 4, 16N 10E – 33 | 331733000406000024 | Vacant Land | Dishman, James B & Joseph T (02/28/2017) |
| 12 | 38.63 | Henry | 15N 10E – 4, 16N 10E – 33 | 331733000403001024 | Other agricultural use | McFarland Farms Holdings LLC (02/28/2017) |
| 13 | 37.15 | Henry | 15N 10E – 4, 16N 10E – 33 | 331733000303000024 | Vacant Land | McFarland Farms Holdings LLC (02/28/2017) |
| 14 | 316.39 | Henry | 16N 10E – 28, 33 | 331733000404000024 | Agricultural Land With PP Mobile Home | Surface, Russell & Dorothy Elaine (02/28/2017) |
| 15 | 40.51 | Henry | 16N 10E – 33, 34 | 331734000107000007 | Cash grain/general farm | Dishman, Joe V (02/28/2017) |
| 16 | 58.92 | Henry | 16N 10E – 33, 34 | 331734000106000007 | Vacant Land | Dishman, Joseph Trent Joe V J K (02/28/2017) |
| 17 | 19.58 | Henry | 16N 10E – 27, 28, 33, 34 | 331734000101000007 | Other agricultural use | McFarland Farms Holdings LLC (02/28/2017) |
| 18 | 82.18 | Henry | 16N 10E – 34 | 331734000203000007 | Cash grain/general farm | Dishman, Joseph T & James B (02/28/2017) |
| | **1,335.01** | | | | | |

Notes:
[1] Acre Value as provided by the Beacon public database.

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# 3 Regulatory Authority

## 3.1 Regulatory Overview

Wetlands in Indiana are regulated under the Federal Clean Water Act (CWA), Section 404 program. The USACE under authority of the CWA Section 404(b)(1) guidelines, authorizes the discharge of dredge and fill material into WOUS as defined by 33 CFR 328.3 and 329.4, which defines WOUS as “Traditional navigable waters; interstate waters, including interstate wetlands; the territorial seas; impoundments of traditional navigable waters, interstate waters, including interstate wetlands, the territorial seas, and tributaries, as defined, of such waters; tributaries, as defined, of traditional navigable waters, interstate waters, or the territorial seas; and adjacent waters, including adjacent wetlands”.

Waterbodies under the jurisdiction of USACE, include Traditional Navigable Waterways (TNWs), which include all navigable waters of the United States as defined in 33 CFR 329, and by numerous federal court decisions. In addition, non-navigable tributaries of TNW’s that are relatively permanent waterways (RPWs) are also considered to be jurisdictional waters of the United States. The USACE Ordinary High-Water Mark (OHWM) is a jurisdictional benchmark for administering its regulatory program in navigable waterways under Section 10 of the Rivers and Harbors Act and Section 404 of the CWA. The OHWM is the location that represents the approximate line on the shore established by fluctuations of water as indicated by physical characteristics such as shelving, destruction of terrestrial vegetation, presence of litter or debris, or changes in the character of soil. The USACE may also assert jurisdiction over non-navigable tributaries that have a channel and OHWM but do not flow year-round or have continuous flow at least seasonally if they demonstrate a significant nexus with a TNW. These waterbodies are classified as non-navigable, non-RPWs.

For the PSA, all aquatic resources that have an identifiable OHWM or meet the USACE technical guidance and procedures for identifying and delineating wetlands have been identified. The Project will proceed with a Preliminary Jurisdictional Determination (PJD) and will assume that all aquatic resources meeting the technical guidance for OHWM or wetland determination will be considered jurisdictional WOUS.

If the Project, through design, is unable to avoid impacts to WOUS, a Pre-Construction Notification (PCN) will be submitted to the USACE requesting review and authorization for the Project under Nationwide Permit (NWP) 51 – Land-based Renewable Energy Generation Facilities. The Project would likely meet Louisville District General and Regional Conditions for NWP 51 authorization.

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# 4 Field Investigation and Mapping Methods

## 4.1 Methods

Wetland delineations were conducted in accordance with the USACE *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010). Wetlands and waterbodies were classified in the field using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). Wetland indicator classification for vegetation identified to the species level were recorded based on the *National Wetland Plant List: 2016* (Lichvar et al., 2016).

Hydrology, soils, and vegetation were examined throughout the PSA at discreet plot locations. Field plot locations and aquatic resource boundaries were delineated in the field by recording positional locations using Trimble GeoXH, Geoexplorer 6000 Series and Geo7x Series, sub-meter hand-held global positioning system (GPS) units. Delineated wetland boundaries were also marked in the field using pink flagging tape unless the boundary extended into a managed hayfield, agricultural cropland, or if livestock were present. If a wetland extended beyond the PSA boundary, the wetland was designated as “open-ended”. The OHWM of streams were delineated alongside both banks for streams greater than 12-feet in width. For streams less than 12-feet in width, the centerline of the stream was delineated, and the estimated average width was recorded and used to buffer the delineated centerline. Streams within the PSA were classified as either perennial, intermittent, ephemeral, or ditch (non-jurisdictional and jurisdictional), in accordance with USACE regulations based on the permanence or duration of flow, as follows:

- Perennial waterbodies typically flow or contain standing water year-round, and under normal circumstances, support populations of fish and macroinvertebrates.
- Intermittent waterbodies flow or contain standing water seasonally, are typically dry for part of the year, and do not usually support populations of fish or macroinvertebrates which are directly dependent on water.
- Ephemeral waterbodies generally contain water only in response to precipitation, and usually do not support populations of fish or macroinvertebrates dependent on water.
- Ditch waterbodies within the study area include excavated, man-made roadside drainages, agricultural drainages, and straightened or modified natural drainages. Ditches were identified as either jurisdictional or non-jurisdictional waters. Non-jurisdictional ditches are man-made drainages that are excavated in upland areas, only drain upland areas (e.g., roadside ditches), and do not carry a relatively permanent flow of water. Jurisdictional ditches are man-made or modified drainages that transport relatively permanent (continuous at least seasonally) flow directly or indirectly into a TNW or between two or more WOUS, including wetlands. Jurisdictional ditches also include replaced, relocated, or otherwise modified natural drainages that either form connections to or drain other WOUS.

Field surveys were conducted throughout the PSA from September 10, 2019 through September 11, 2019. The pedestrian meander surveys included a visual observation of resources within the PSA and were conducted across all parcels, proposed Project workspaces, and within rights-of-way (ROW) of private and public roads. The field survey PSA for the proposed Project consisted of multiple private parcels under active agricultural production, consisting of approximately 1,337.7 acres. The PSA was configured to

capture all areas of potential impact to WOUS. The PSA configuration, wetland and stream delineations, and GPS points collected are represented in Figure 4.1-1, Appendix A.

Field surveys determined wetland/upland boundaries, stream OHWM boundaries, and identified and described general plant communities and habitats present in the areas of potential disturbance for the proposed Project. Pedestrian meander surveys included transects throughout the PSA to develop a comprehensive plant species list, and to conduct wetland and waterbody delineation surveys at specific habitat edges for determining the areal extent of the wetland and other aquatic resources in the PSA. The PSA was configured to encompass all proposed Project facilities and construction limits at the time of the survey, and to allow for Project modifications within a surveyed area if workspace changes are necessary. The PSA is not the Project area of impact, but a study boundary to encompass all areas of potential ground disturbance for the construction of the proposed Project and to provide information on the extent and character of wetlands, waterbodies and other habitats within vicinity of the Project.

Field surveys were supplemented with a review of USFWS NWI mapping, United States Department of Agriculture, Natural Resource Conservation Service (USDA-NRCS) soils mapping, aerial photography acquired by DigitalGlobe on July 8, 2018, and local landscape topographic 2-foot contours to assist in identifying probable locations for wetlands and waterbodies throughout the PSA. During field evaluations, detailed information at test plots (typically configured as a 30-foot radius circle for forested and scrub-shrub sites, and a 15-foot radius circle for herbaceous vegetation) was recorded in representative vegetation types, often in paired upland and wetland locations for determining wetland boundaries. At detailed test plot locations, a USACE Routine Wetland Determination Data Form for the Midwest Region was completed. These plot locations are considered the Wetland Determination (WD) plot type for this report. For each wetland identified, the wetland/upland boundary was delineated and flagged with pink tape and positions recorded in the field using the Wetland Flagging (WF) GPS plot type. Other plot types utilized during the field evaluation include:

- Representative Upland (RU) – The RU plot type is a simple photographic point GPS location used to document the upland habitat type or land use present at a specific location. Soils, vegetation and hydrology indicators are visually assessed prior to making an upland determination.
- Stream Crossing (SC) – The SC plot type is used to document the location and OHWM extent of a linear waterbody (i.e., ephemeral, intermittent, or perennial streams and man-made ditches). Photographs and field notes are recorded at the proposed project crossing location, if applicable. The OHWM of the stream is determined in the field in accordance with USACE guidelines. This plot type is also used to delineate non-jurisdictional man-made ditches and canals for erosion and sediment control planning, design, or construction concerns.

Field plot locations, including aquatic resource boundary flag locations, were collected using sub-meter, mapping grade GPS units (e.g., Trimble). All GPS data were post-processed using the appropriate base station for the PSA to achieve accurate positional information. Figure 4.1-1 in Appendix A presents the Project wetland and stream mapping and location of field plot GPS data collected for this evaluation. Field investigators used working field maps with an aerial imagery base and topographic 10-foot contours for orientation and to manually record approximate locations of field plots while in the field. Field notes were recorded for each plot location within a Rite-in-the-Rain® field logbook. USACE Wetland Determination Data Forms completed at WD plot locations are provided in Appendix B; organized by Principle Investigator (PI) and then by plot number. Site photos taken at plot locations are included in this report as Appendix C; organized by plot type, PI, and plot number.

Table 4.1-1 provides a summary of the resources used to prepare and perform the wetland delineation field surveys and this report. Additionally, Section 4.1 of this report provides a description of the resources used to map aquatic resources and other habitats or land uses within the Project GIS.

**Table 4.1-1: Methods and Tools Used to Prepare Report**

| Parameter | Method/Tool | Website | Reference |
|---|---|---|---|
| Delineation | Corps of Engineers Wetlands Delineation Manual | www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf | Environmental Laboratory (1987). Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. |
| | *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0) | http://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/reg_supp/ | U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* Version 2.0, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center. |
| | USFWS National Wetlands Inventory (NWI) / Cowardin Classification System | http://www.fws.gov/nwi/Pubs_Reports/Class_Manual/class_ti tlepg.htm | Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Government Printing Office, Washington, D.C. |
| | Hydrogeomorphic Classification (HGM) System | http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde4.pdf | Brinson, M. M. (1993). A hydrogeomorphic classification for wetlands, Technical Report WRP- DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. |
| | USFWS National Wetlands Inventory (NWI) Maps | http://www.fws.gov/wetlands/Data/Data-Download.html | Website |
| Soils | NRCS Soil Surveys - SSURGO GIS Dataset | http://www.nrcs.usda.gov/wps/portal/nrcs/soilsurvey/soils/survey/state/ | Website |
| Hydrology | USGS National Hydrography Dataset | ftp://nhdftp.usgs.gov/DataSets/Staged/States/ | Website |
| Vegetation | USACE 2016 National Wetland Plant List | http://rsgisias.crrel.usace.army.mil/NWPL/ | Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X. |
| | NRCS PLANTS Database | http://plants.usda.gov/java/ | Website |
| | Plant Guides | N/A | Numerous sources |

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## 4.2 Evaluation of Existing Data

Prior to initiating field studies within the PSA, existing sources of GIS data with relevance to mapping aquatic and biological resources were identified, compiled and analyzed within the Project GIS. These are described in Sections 4.2.1 through 4.2.4. Mott MacDonald reviewed publicly-available geospatial datasets for wetland/waterbodies located within or proximal to the Project site. These datasets included:

- National Wetland Inventory (NWI) Wetlands[3]
- USGS National Hydrography Dataset (NHD) Flowlines
- USGS National Watershed Dataset (WBD); and
- NRCS Soil Survey data

### 4.2.1 National Wetlands Inventory Mapping

The USFWS is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetland and aquatic resources. The USFWS's NWI Program has developed a series of topical maps that show the extent and character of the Nation's wetlands and deepwater habitats. The NWI wetlands mapping is often available in two forms, non-digital hard-copy paper maps and digital geospatial data for use in GIS.

NWI mapping for the PSA is available to the public as a digital GIS data layer. The NWI mapped seven resources within the PSA. These include three forested wetlands, two scrub-shrub wetlands, one emergent wetland and one riverine wetland. Table 4.2-1 provides a summary of the NWI mapping within the PSA. For reference, the NWI mapping data layer is presented in Figure 4.1-1, Appendix A.

**Table 4.2-1: NWI Wetlands Summary for the PSA**

| Resource | NWI Classification | Number of Mapped Resources | Acreage |
|---|---|---|---|
| Freshwater Forested Wetland | PFO1A | 2 | 0.396 |
| | PFO1Ax | 1 | 1.441 |
| **Subtotal Forested Wetlands** | | **3** | **1.837** |
| Freshwater Scrub-Shrub Wetland | PSS1Ax | 1 | 0.864 |
| | PSS1F | 1 | 0.743 |
| **Subtotal Scrub-Shrub Wetlands** | | **2** | **1.607** |
| Freshwater Emergent Wetland | PEM1C | 1 | 0.098 |
| **Subtotal Emergent Wetlands** | | **1** | **0.098** |
| Riverine Intermittent Streambed | R4SBC | 1 | 1.752 |
| **Riverine Subtotal** | | **1** | **1.752** |
| **TOTAL NWI Resources** | | **7** | **5.294** |

### 4.2.2 National Hydrography Dataset

The USGS NHD is developed to identify surface water systems throughout the United States primarily at the 7.5-minute topographic quadrangle scale (i.e., 1:24,000 scale). The NHD represents the drainage network with features such as rivers, streams, canals, lakes, ponds,

[3] https://www.fws.gov/wetlands/data/mapper.html

coastline, dams and stream gages. The mapped drainage network is designed to be used for general reference, water resource naming, and in the flow analysis of surface water systems and watersheds. Table 4.2-2 summarizes the waterbodies mapped by the USGS NHD within the PSA. Table 4.2-2 is summarized by the larger drainage systems that are named according to USGS NHD and accounts for the number and length of unnamed tributaries (UNT) to the named resource.

**Table 4.2-2: USGS NHD Streams Summary for the PSA**

| Named Resource | Length of Named Resource (feet) | Number of Tributaries | Length of UNT Tributaries (feet) | Total Length in PSA (feet) |
|---|---|---|---|---|
| Little Blue River | 5,095 | 39 | 67,844 | 72,939 |
| **Totals** | | **39** | **67,844** | **72,939** |

### 4.2.3 National Watershed Boundary Dataset

The USGS WBD represents large drainage basins subdivided into smaller watersheds using hydrologic unit code (HUC) classes. The Project is located within the Driftwood 8-digit HUC (i.e., HUC8) drainage basin. Table 4.2-3 lists the USGS HUC08 drainage basin and HUC12 local watersheds for the Project. The NHD and WBD mapping data layers are also presented in Figure 4.1-1, Appendix A.

**Table 4.2-3: USGS Watersheds Crossed by the Project**

| HUC08 Basin | HUC12 Watershed | Watershed Name | Area in PSA (Acres) |
|---|---|---|---|
| 05120205 – Flatrock-Haw | 051202050104 | Wikoff Ditch-Flatrock River | 0.1 |
| 05120204 – Driftwood | 051202040201 | Headwaters Little Blue River | 1,329.0 |
| | 051202040105 | Knightstown Spring-Buck Creek | 8.6 |

### 4.2.4 NRCS Soil Survey Geographic (SSURGO) Database

The SSURGO database is a digitized soil mapping GIS dataset developed by the USDA NRCS. Mapping scales generally range from 1:12,000 to 1:24,000. The SSURGO dataset are digitized duplicates of the original soil survey maps and, therefore, are the most detailed level of soil mapping performed by the NRCS. SSURGO is linked to a National Soil Information System (NASIS) attribute database which provides the proportionate extent of component soils and their properties for each map unit. Map units for the SSURGO database consist of one to three components each. Attribute data in the NASIS database apply to the principal component in each soil mapping unit and were used to identify the Project soil units including attributes such as hydric condition, texture, drainage class, and prime farmland classification. Minor components may have hydric conditions that differ from the primary component soils. Table 4.2-4 summarizes the soils mapped by the NRCS within the PSA. The NRCS Soil Map Unit Description report produced from the NRCS Web Soil Survey website, is provided as Appendix D.

**Table 4.2-4: NRCS Mapped Soils for the PSA**

| Map Unit Symbol | Map Unit Name | Acreage | Percentage | Hydric Rating |
|---|---|---|---|---|
| CeB2 | Celina silt loam, 2 to 6 percent slopes, eroded | 94.3 | 7.1% | No |
| CrA | Crosby silt loam, 0 to 2 percent slopes | 327.4 | 24.5% | No |
| Cy | Cyclone silty clay loam, 0 to 2 percent slopes | 279.7 | 20.9% | Yes |
| EdA | Eldean silt loam, 0 to 2 percent slopes | 8.5 | 0.6% | No |
| EdB2 | Eldean loam, 2 to 6 percent slopes, eroded | 27.9 | 2.1% | No |
| LeB2 | Losantville silt loam, 2 to 6 percent slopes, eroded | 33.6 | 2.5% | No |
| MlA | Miami silt loam, gravelly substratum, 0 to 2 percent slopes | 5.0 | 0.4% | No |
| MmB2 | Miamian silt loam, 2 to 6 percent slopes, eroded | 35.4 | 2.6% | No |
| MpB2 | Miamian silt loam, New Castle Till Plain, 2 to 6 percent slopes, eroded | 143.7 | 10.7% | No |
| MrA | Miami silt loam, gravelly substratum, 0 to 2 percent slopes | 7.3 | 0.5% | No |
| MuC3 | Miamian clay loam, 6 to 12 percent slopes, severely eroded | 10.6 | 0.8% | No |
| Mx | Millgrove loam | 0.8 | 0.1% | Yes |
| OcA | Ockley silt loam, 0 to 2 percent slopes | 124.3 | 9.3% | No |
| OcB2 | Ockley silt loam, 2 to 6 percent slopes, eroded | 5.1 | 0.4% | No |
| Sk | Sleeth silt loam, 0 to 2 percent slopes | 0.2 | 0.0% | No |
| So | Sloan silt loam, 0 to 2 percent slopes, frequently flooded | 12.6 | 0.9% | Yes |
| Tr | Treaty silty clay loam, 0 to 1 percent slopes | 128.1 | 9.6% | Yes |
| We | Westland silt loam | 13.2 | 1.0% | Yes |
| Ws | Westland clay loam, 0 to 1 percent slopes | 80.0 | 6.0% | Yes |
| **Totals** | | **1,337.7** | **100.0%** | |

Source: USDA Web Soil Survey

### 4.2.5 Aerial Photography

True-color orthorectified digital aerial photography is available for the PSA at a resolution of 0.3-$m^2$, acquired July 8, 2018. This imagery was acquired by the DigitalGlobe satellite system and made available to the public through the World Imagery Layer viewed in ArcGIS software. This imagery was used as the mapping base to complete the delineation of wetlands and waterbodies, including other habitat types and land uses within the PSA.

## 4.3 Digital Mapping Methods and Process

The standard process of conducting a digital vegetation mapping inventory requires an ortho-rectified imagery base, ancillary data layers such as elevation, hydrography (i.e., streams and watersheds), field data (i.e., GPS location points, field notes, and site photographs) and the

software to analyze and interpret those data layers. The mapping process includes delineating the field delineated wetlands and surface water features (i.e., lakes, ponds, streams, and ditches), and other major vegetation or landuse units from aerial imagery, and then identifying their features or attributes using classification systems. For the proposed Project, wetland delineation and land use/habitat mapping polygons were created using ESRI ArcGIS 10.6.1 software packages. The mapping process described herein includes information on vegetation interpretation techniques, application of the classification systems, and discusses quality assurance/quality control (QA/QC) measures.

### 4.3.1 Interpretation Techniques

The mapping process used for the Project was a manual interpretation and delineation of the vegetation communities. The manual interpretation of the imagery provides for an accurate delineation of the major vegetation communities, provides statistics on their extent, and nature of their composition. The delineations are completed on-screen, within the GIS mapping environment. This delineation process is known as “heads-up digitizing.” There are no inaccuracies created through a transfer process; the delineations are as accurate as the ortho-rectified imagery and GPS points allow. In addition to major vegetation and landuse breaks, all wetland and waterbody boundaries within the PSA were flagged in the field and boundary flag locations were recorded using a sub-meter accuracy GPS unit. The flagged wetland and waterbody boundaries were digitized in the GIS using the GPS location information.

## 4.4 Quality Control Measures

Quality control measures are in place to check the field data collected and the field forms completed as well as to assure the integrity and accuracy of the digital mapping data. Digital mapping quality control measures include semi-automated GIS systems and senior scientist review. To ensure the integrity of the GIS digital line work, the files are validated through a semi-automated GIS model. This model evaluates the GIS mapping data and inspects for data gaps, slivers, overlapping polygons, duplicate polygons, and multi-part polygons. All data errors are flagged and corrected as needed. This semi-automated quality control process provides for accurate summary statistics such as acreages reported.

The senior scientist review occurred collaboratively with the scientists who conducted the wetland field surveys. Additionally, field GPS data and field forms were collaboratively reviewed following the completion of the field surveys. Upon completion of the field surveys, the GIS mapping data was reviewed by senior scientists for consistency and to determine that resources were correctly identified according to field data collected. The senior scientist review involves manually reviewing each mapped polygon individually across all coded attributes. Discrepancies between the field data collected and the delineated vegetation unit within the GIS are further inspected and rectified by the senior scientists.

After completion of the senior scientist review the mapping file is passed through the semi-automated GIS model once again to identify and rectify any physical discrepancies with the data. Upon a clean pass through the QA/QC model the data is considered final and made available for statistical analysis.

### 4.4.1 GPS Equipment Used and Quality Control

Field plot positional locations were collected in the field using a Trimble GeoXH, Geoexplorer 6000 Series and/or Geo 7 Series, sub-meter hand-held GPS units. GPS units are equipped with Terrasync software used for data collection. Prior to mobilizing for field work, GPS units are setup with a Terrasync Data Dictionary to collect specific plot types and to record site characteristics.

Additionally, GPS units are setup with background files to delimit the PSA boundary to help field crews with navigation and data collection across the full extent of the PSA.

For quality control, post-processing differential correction of field collected GPS data was completed using Pathfinder Office software. Post-processing was completed individually for each day field surveys were conducted. The differential correction process used to complete the post-processing for this survey is as follows:

Pathfinder Office GPS Differential Correction

Process Used: Automatic Carrier and Code Processing

Single Base Station

GPS and GNSS Enabled (5 second rate)

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# 5 Wetland/Waterbody Delineation Results

## 5.1 Introduction

Wetland and waterbody delineations were conducted throughout the PSA from September 10, 2019 through September 11, 2019. Investigations indicate the presence of seven wetlands, seven streams, and no jurisdictional ditches within the PSA. The locations of these features are shown in Figure 4.1-1 within Appendix A. Two wetland classes, three natural waterbody types, and one man-made waterbody type were identified within the PSA:

- Palustrine Emergent (PEM) – wetlands that are dominated (i.e., having at least 30% areal coverage) by persistent, erect, rooted herbaceous hydrophytes (e.g., grasses, sedges, rushes, herbs and forbs) (Cowardin et al., 1979);
- Palustrine Forested (PFO) – wetlands that are dominated (i.e., having at least 30% areal coverage) by woody vegetation that is at least 20-feet tall and has a diameter greater than 3-inches measured at breast height (DBH) (Cowardin et al., 1979);
- Intermittent Streams: Riverine Intermittent Streambed (R4SBC) – natural streams that flow only seasonally and are dry or contain pools with no connecting flows for portions of the year (Cowardin et al., 1979);
- Perennial Streams: Riverine Unconsolidated Bottom (R3UBH) – natural streams that maintain flows throughout the year (Cowardin et al., 1979);
- Ephemeral Streams: Riverine Ephemeral Streambed (R4SBJ) – natural streams or erosional channels that have flows only in response to precipitation events (Cowardin et al., 1979);
- Ditches: Riverine Streambed, Excavated (R4SBAx) – man-made or modified, straightened drainages, includes canals, drainage ditches, and drainage swales (Cowardin et al., 1979);

Table 5.1-1 and Table 5.1-2, located at the end of Section 5, summarize the results of the wetland and waterbody field delineations within the PSA.

## 5.2 General Wetland Descriptions

All delineated wetlands were palustrine wetlands which are non-tidal, freshwater wetlands dominated by trees, shrubs, or persistent emergent herbaceous vegetation, and also includes small open-water ponds. Table 5.1-1, located at the end of Section 5, lists the wetlands identified in the PSA.

### 5.2.1 Emergent Herbaceous Wetlands

Several PEM wetlands were identified within the PSA including herbaceous margins to mature forested wetlands and depressions. Emergent wetlands within the PSA were classified as either depressional or slope wetlands under the hydrogeomorphic (HGM) classification system. Depressional wetlands occur within closed topographic depressions and slope wetlands occur in swales and on toeslopes where groundwater expressions occur. Depressional wetlands are

maintained primarily by direct precipitation, whereas slope wetlands are maintained primarily by groundwater discharge. In general, PEM wetlands are dominated by non-woody, rooted, erect hydrophytes with less than 30% areal coverage of woody plants.

Herbaceous wetlands were commonly dominated by barnyard grass (*Echinochloa crus-gali*.), clearweed (*Pilea pumila*.), and common ragweed (*Ambrosia artemisiifolia*).

### 5.2.2 Forested Wetlands

Two palustrine forested wetlands were identified within the PSA and primarily consisted of mature deciduous bottomland hardwood wetland forested communities. The forested wetlands within the PSA were classified as either depressional or slope wetlands under the HGM classification system. Depressional wetlands occur within closed topographic depressions and slope wetlands occur in swales and on toeslopes where groundwater expressions occur. In general, forested wetlands are dominated (i.e., areal extent greater than 30% cover) by woody vegetation greater than 20-feet tall with tree species having an average DBH greater than three inches.

Common trees found in PFO wetlands throughout the PSA include black willow (*Salix nigra*), Eastern cottonwood (*Populus deltoides*), Green ash (*Fraxinus pennsylvanica*), and American black walnut (*Juglans nigra*). Primary midstory and understory associates include saplings of the tree species previously identified, as well as, buttonbush (*Cephalanthus occidentalis*). The herbaceous stratum was dominated by swamp smartweed (*Persicaria hydropiperoides*).

## 5.3 General Waterbody Descriptions

Within the PSA, the Project identified seven stream channels, of which two as perennial, one as intermittent, and four as ephemeral. Field surveys also identified all man-made ditches within the PSA and field determined their jurisdictional status. One man-made ditch was identified within the PSA determined to be a non-jurisdictional roadside drainage ditch.

Field surveys recorded waterbody characteristics on GPS units and completed field forms to document the following morphologic and flow characteristics observed in the field; stream type (i.e., perennial, intermittent, ephemeral, or ditch), OHWM width, wetted channel width, depth of flow, dominant substrate, bank height, bank slope, flow condition (i.e., flowing, turbid, pools-no flow, or dry), flow direction, and presence of fish.

Table 5.1-2, located at the end of Section 5, lists the waterbodies identified in the PSA and provides the length of stream within the PSA and the average OHWM width.

### 5.3.1 Perennial Streams

Perennial waterbodies typically flow or contain standing water year-round, and under normal circumstances, support populations of fish and macroinvertebrates. Two perennial streams were identified in the PSA, determined as natural, high-gradient perennial streams supported by a narrow floodplain. Upper perennial streams are typically supported by a narrow floodplain, often upland riparian which does not meet wetland criteria; however, wetland seeps and springs which meet wetland criteria can also be present within the narrow stream valleys.

### 5.3.2 Intermittent Streams

Intermittent waterbodies flow or contain standing water seasonally, are typically dry or contain pools with no flow for part of the year, and do not usually support populations of fish or macroinvertebrates which are directly dependent on water. Intermittent streams within the PSA were typically high-gradient, incised channels which were either dry, contained pools with no connecting flows, or had low flows that would likely not be sustained throughout the dry season.

### 5.3.3 Ephemeral Streams

Ephemeral waterbodies generally contain water only in response to precipitation, and usually do not support populations of fish or macroinvertebrates dependent on water. Ephemeral drainages within the PSA were typically high-gradient, incised, erosional channels which were dry or contained pools with no connecting flows. Ephemeral drainages were delineated in the field if they exhibited an OHWM indicator, typically, if they had a bed and bank.

### 5.3.4 Ditches

Ditch waterbodies within the study area include excavated, man-made roadside drainages, determined to be non-jurisdictional. Non-jurisdictional ditches are man-made drainages that are excavated in upland areas, only drain upland areas (e.g., roadside ditches), and do not carry a relatively permanent flow of water. Jurisdictional ditches are man-made or modified drainages that transport relatively permanent (continuous at least seasonally) flow directly or indirectly into a TNW or between two or more WOUS, including wetlands. Jurisdictional ditches also include replaced, relocated, or otherwise modified natural drainages that either form connections to or drain other WOUS.

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### Table 5.1-1: Wetlands Delineated within the PSA

| Count | Wetland Name | Cowardin | HGM Class | Date Surveyed | Area (acres) | Latitude (DD) | Longitude (DD) |
|---|---|---|---|---|---|---|---|
| 1 | W01-PFO | PFO | Depressional | 9/10/2019 | 2.763 | 39.795837 | -85.417707 |
| 2 | W02-PEM | PEM | Depressional | 9/10/2019 | 0.056 | 39.79464 | -85.404136 |
| 3 | W03-PEM | PEM | Depressional | 9/10/2019 | 0.045 | 39.794643 | -85.402509 |
| 4 | W04-PEM | PEM | Depressional | 9/11/2019 | 0.304 | 39.787091 | -85.416316 |
| 5 | W05-PEM | PEM | Depressional | 9/11/2019 | 0.072 | 39.786824 | -85.414271 |
| 6 | W06-PEM | PEM | Slope | 9/11/2019 | 0.165 | 39.785425 | -85.415308 |
| 7 | W07-PFO | PFO | Slope | 9/11/2019 | 1.091 | 39.773538 | -85.404323 |
| **TOTAL** | | | | | **4.496** | | |

### Table 5.1-2: Waterbodies Delineated within the PSA

| Count | Waters Name | Type | Date Surveyed | OHWM Width (feet) | Length (feet) | Latitude (DD) | Longitude (DD) |
|---|---|---|---|---|---|---|---|
| ***Streams*** | | | | | | | |
| 1 | S01-EPH | Ephemeral | 9/10/2019 | 10 | 814 | 39.800327 | -85.424078 |
| 2 | S02-EPH | Ephemeral | 9/10/2019 | 3 | 886 | 39.800155 | -85.423243 |
| 3 | S03-EPH | Ephemeral | 9/10/2019 | 2 | 267 | 39.791432 | -85.419059 |
| 4 | S04-PER | Perennial | 9/11/2019 | 8 | 3,070 | 39.776988 | -85.412237 |
| 5 | S05-INT | Intermittent | 9/11/2019 | 6 | 965 | 39.776453 | -85.410663 |
| 6 | S06-EPH | Ephemeral | 9/11/2019 | 4 | 94 | 39.776437 | -85.411701 |
| 7 | S07-PER | Perennial | 9/11/2019 | 12 | 5,075 | 39.775604 | -85.416891 |
| ***Streams Subtotal*** | | | | | **3,026** | | |
| ***Ditches*** | | | | | | | |
| 1 | D01-NOJ | Ditch | 9/10/2019 | 3 | 2,458 | 39.798654 | -85.409975 |
| ***Ditches Subtotal*** | | | | | **2,458** | | |
| **Waters TOTAL** | | | | | **5,484** | | |

# 6 References

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# Appendices

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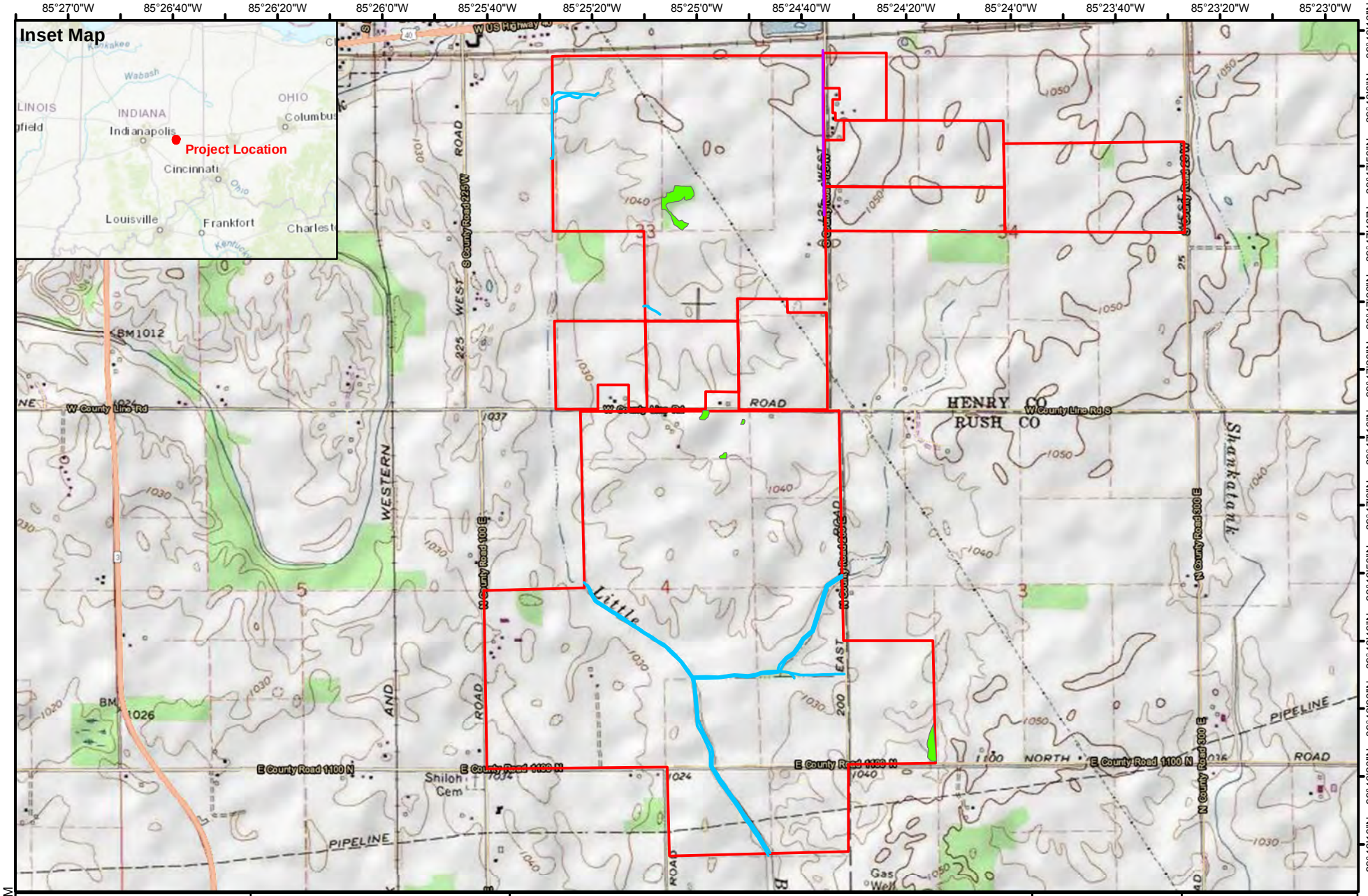
# A. Figures and Maps




**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- ESRI World Transporation
- USGS 1:24k Topographic Quad

**Legend:**
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 1.1-1

PROJECT OVERVIEW FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 1,000 2,000 4,000

N W E S

ABSOLUTE SCALE: 1:24,000

REFERENCE SCALE: 1 IN = 2,000 feet

MOTT MACDONALD
5295 S. Commerce Dr. Ste. 500
Salt Lake City, UT 84107
Ph: (801) 559-2716

Drawn By: JLM
Date: 10/15/2019

Page: 1 of 1

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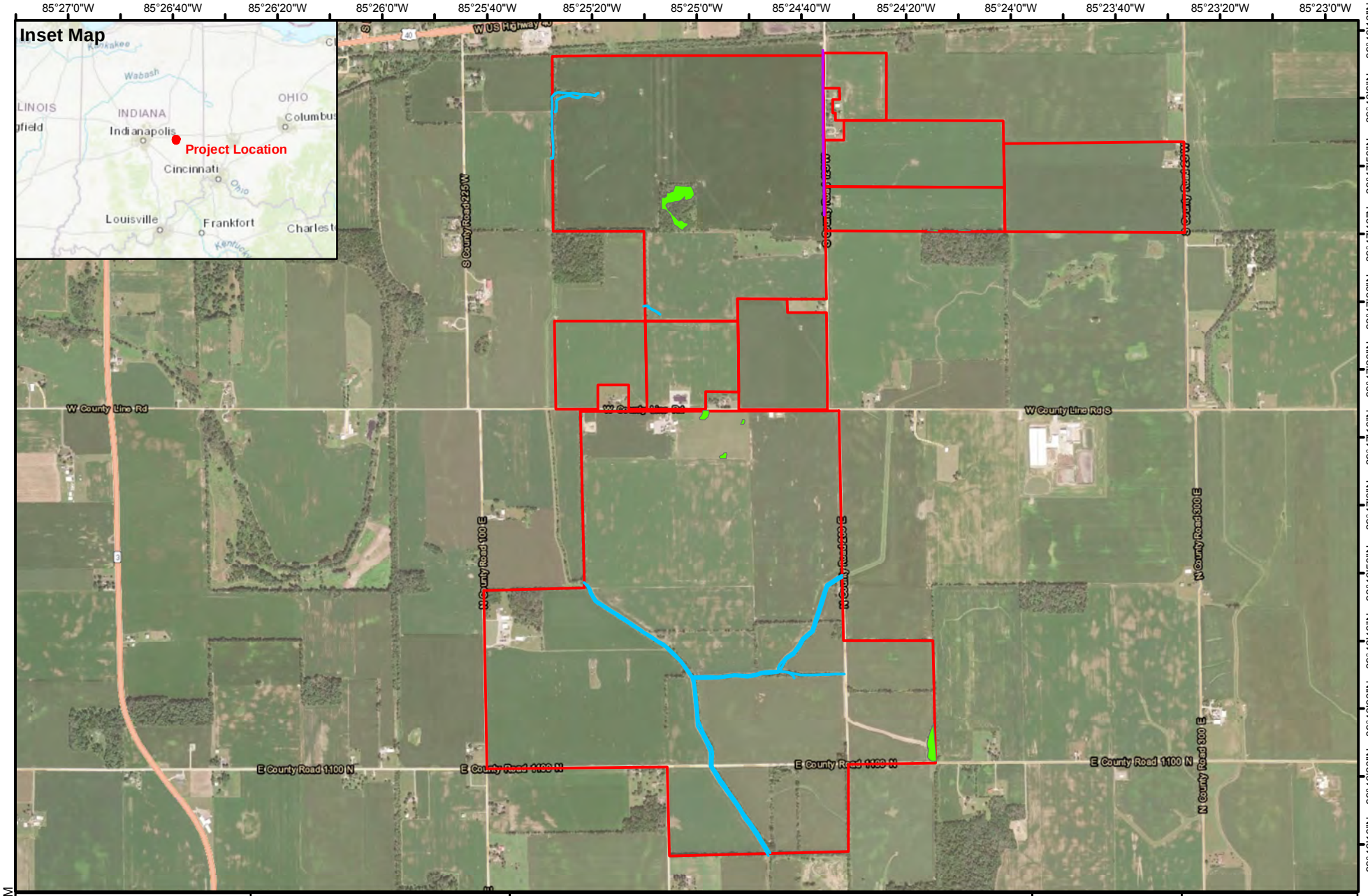


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**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 1.1-2

PROJECT OVERVIEW FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
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ABSOLUTE SCALE: 1:24,000

REFERENCE SCALE: 1 IN = 2,000 feet

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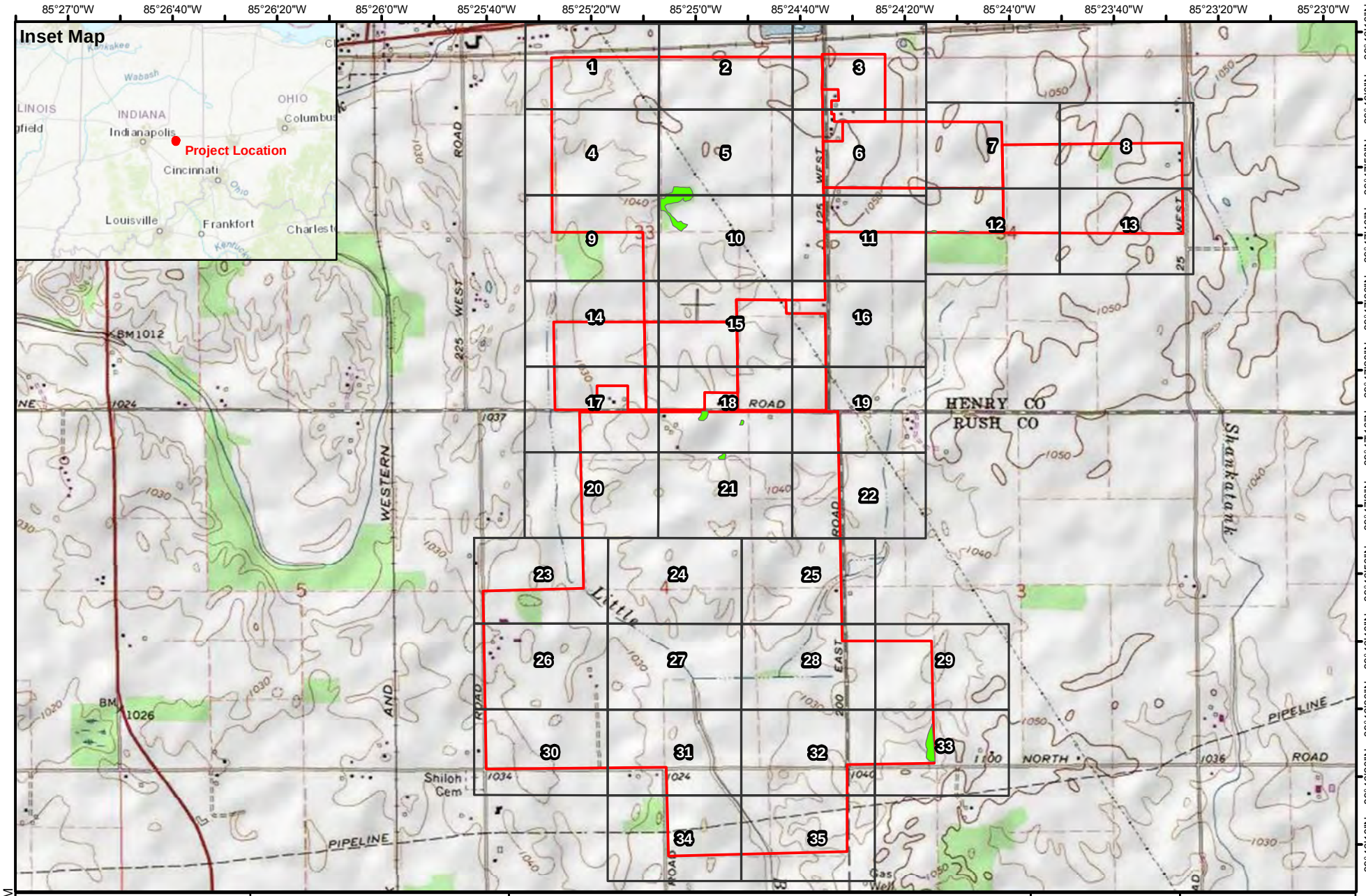
Page: 1 of 1




**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- Sheet Layout Index
- USGS 1:24k Topographic Quad

**Legend:**
- INDEX_2400
- Wetland Delineation
- Project Study Area

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 1,000 2,000 4,000

N W E S

ABSOLUTE SCALE: 1:24,000

REFERENCE SCALE: 1 IN = 2,000 feet

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INDEX MAP

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**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- USFWS NWI Wetlands
- NRCS Soils
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Culvert
- Representative Upland
- Wetland Determination
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- Stream Delineation
- Wetland Delineation
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- USFWS NWI
- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 100 200 400

N W E S

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

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- USFWS NWI Wetlands
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**Legend:**
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- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

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Salt Lake City, UT 84107
Ph: (801) 559-2716

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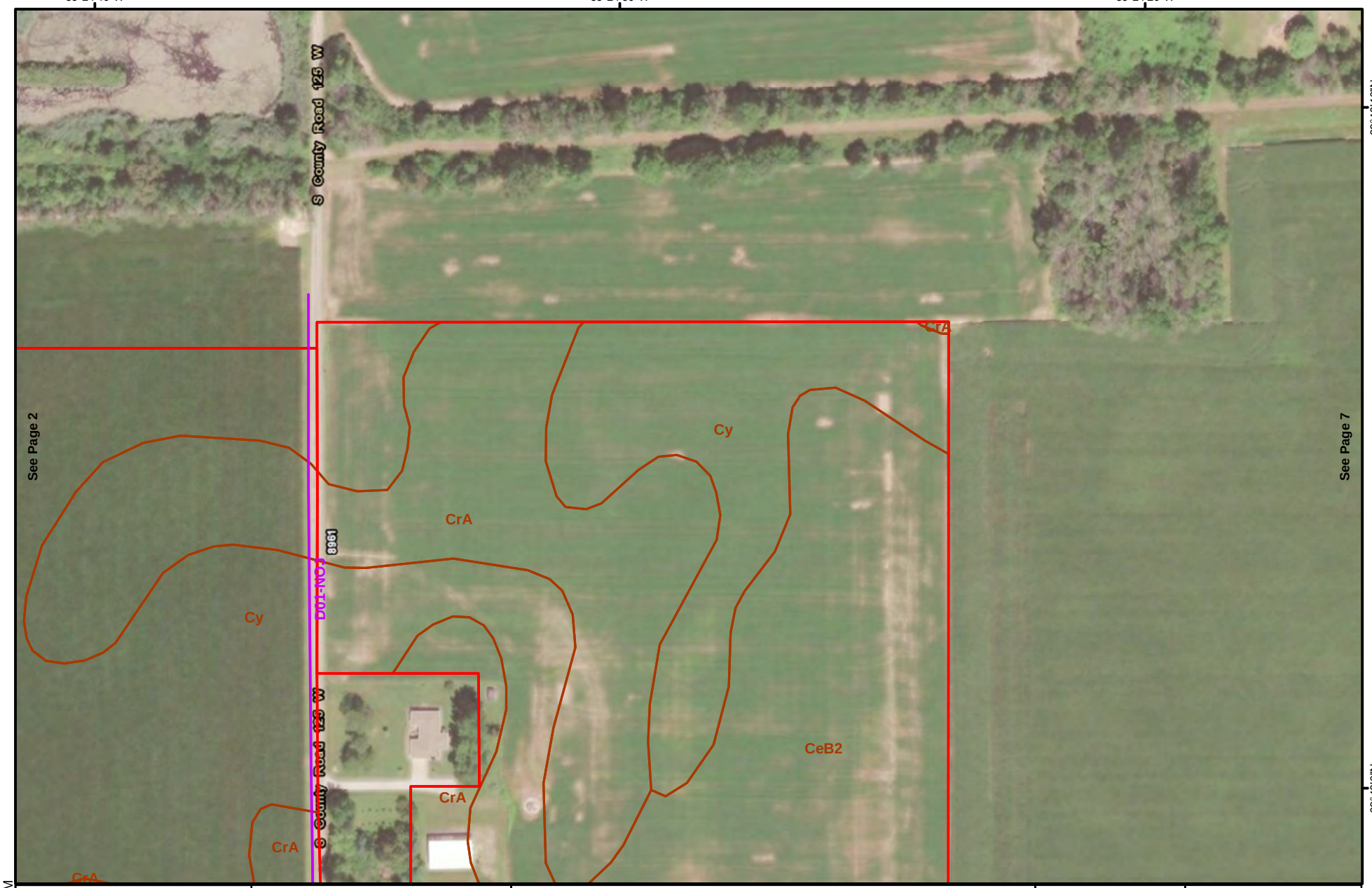


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## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

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- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

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HENRY & RUSH COUNTIES, INDIANA

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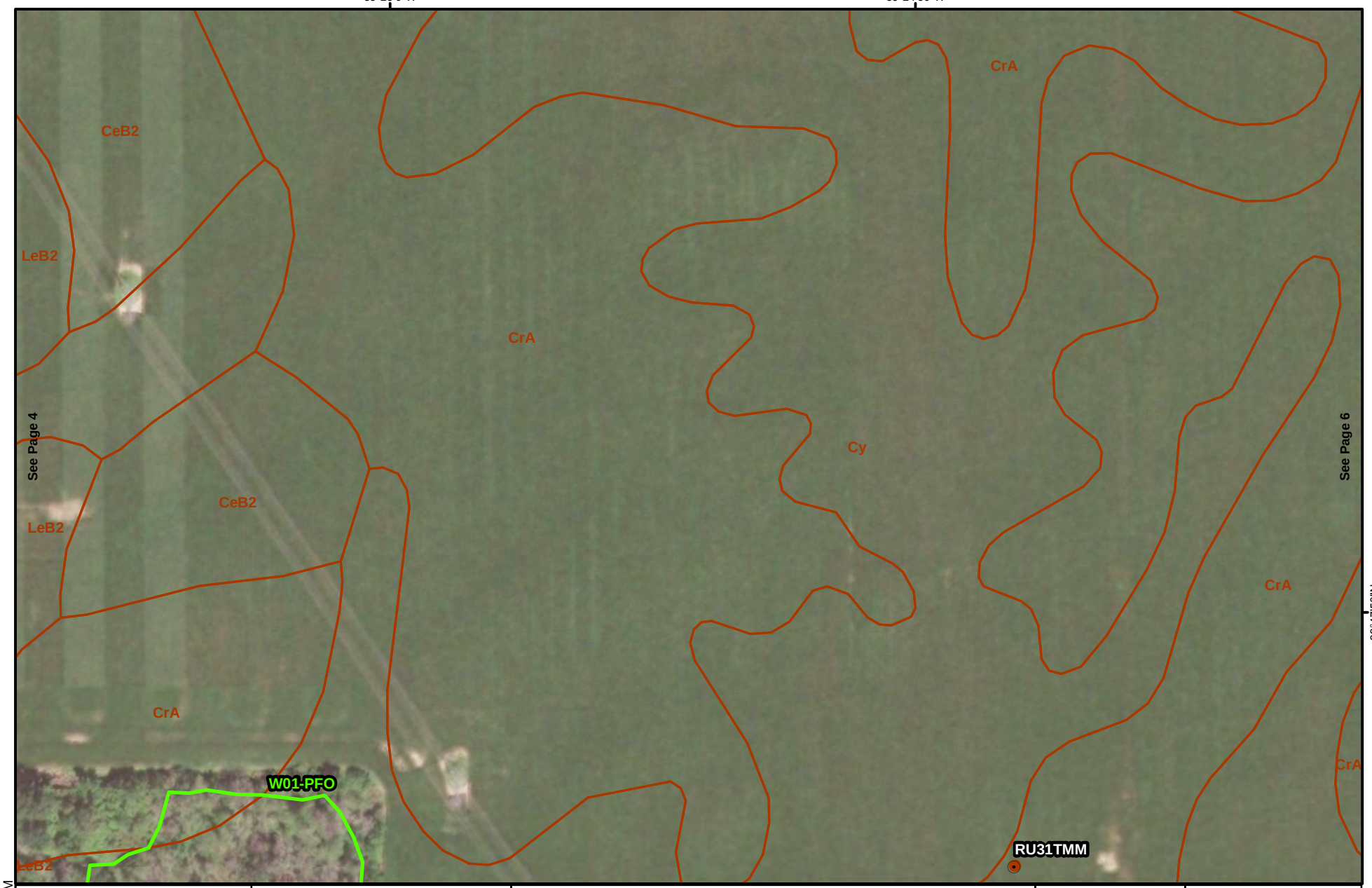


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# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

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HENRY & RUSH COUNTIES, INDIANA

0 100 200 400 Feet

N W E S

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Ph: (801) 559-2716

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# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

0 100 200 400 Feet

N W E S

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Ph: (801) 559-2716

ABSOLUTE SCALE: 1:2,400

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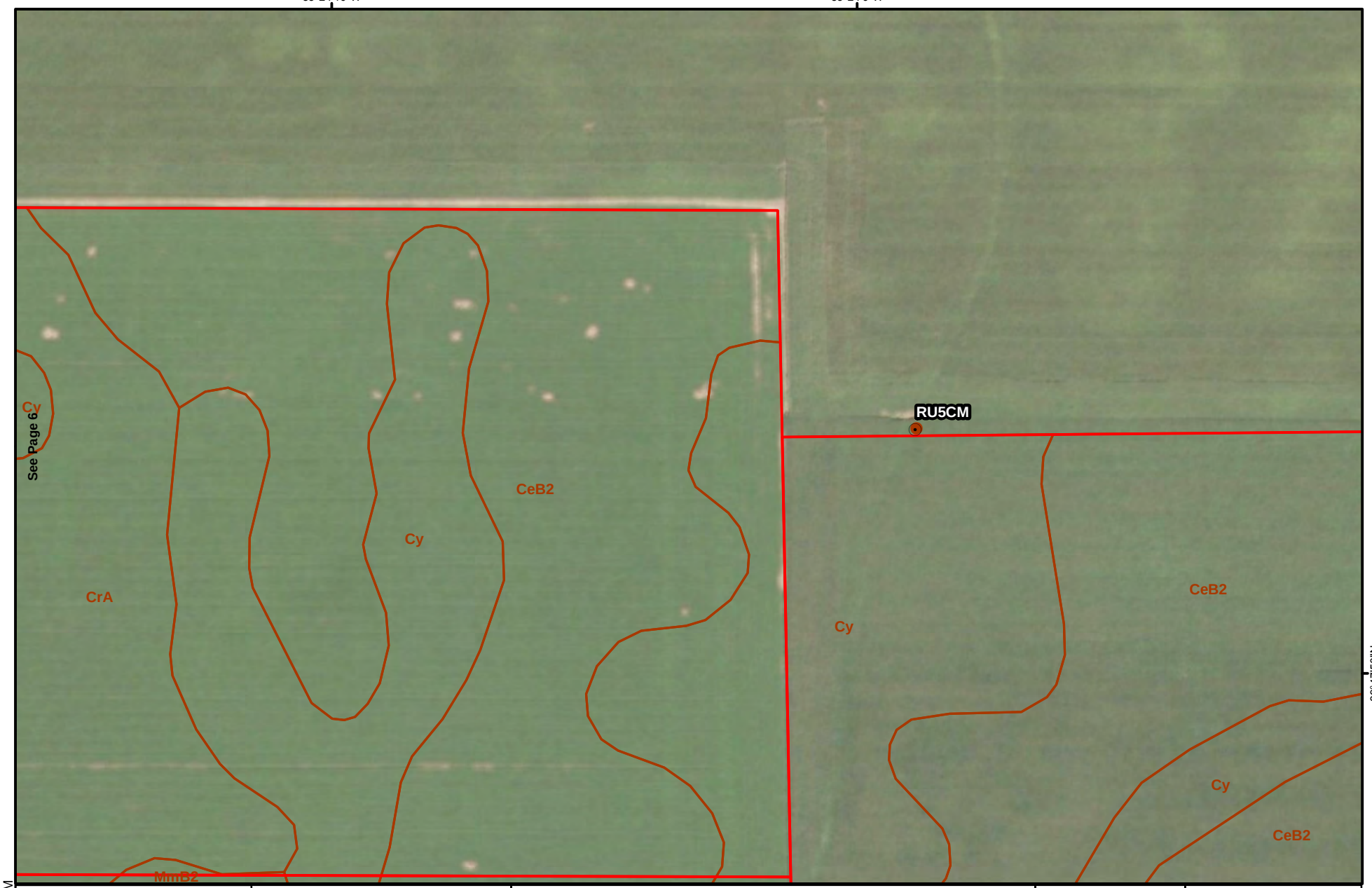


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# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 100 200 400

N W E S

MOTT MACDONALD
5295 S. Commerce Dr. Ste. 500
Salt Lake City, UT 84107
Ph: (801) 559-2716

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

Drawn By: JLM
Date: 10/15/2019



Date: 10/15/2019 11:25:22 AM


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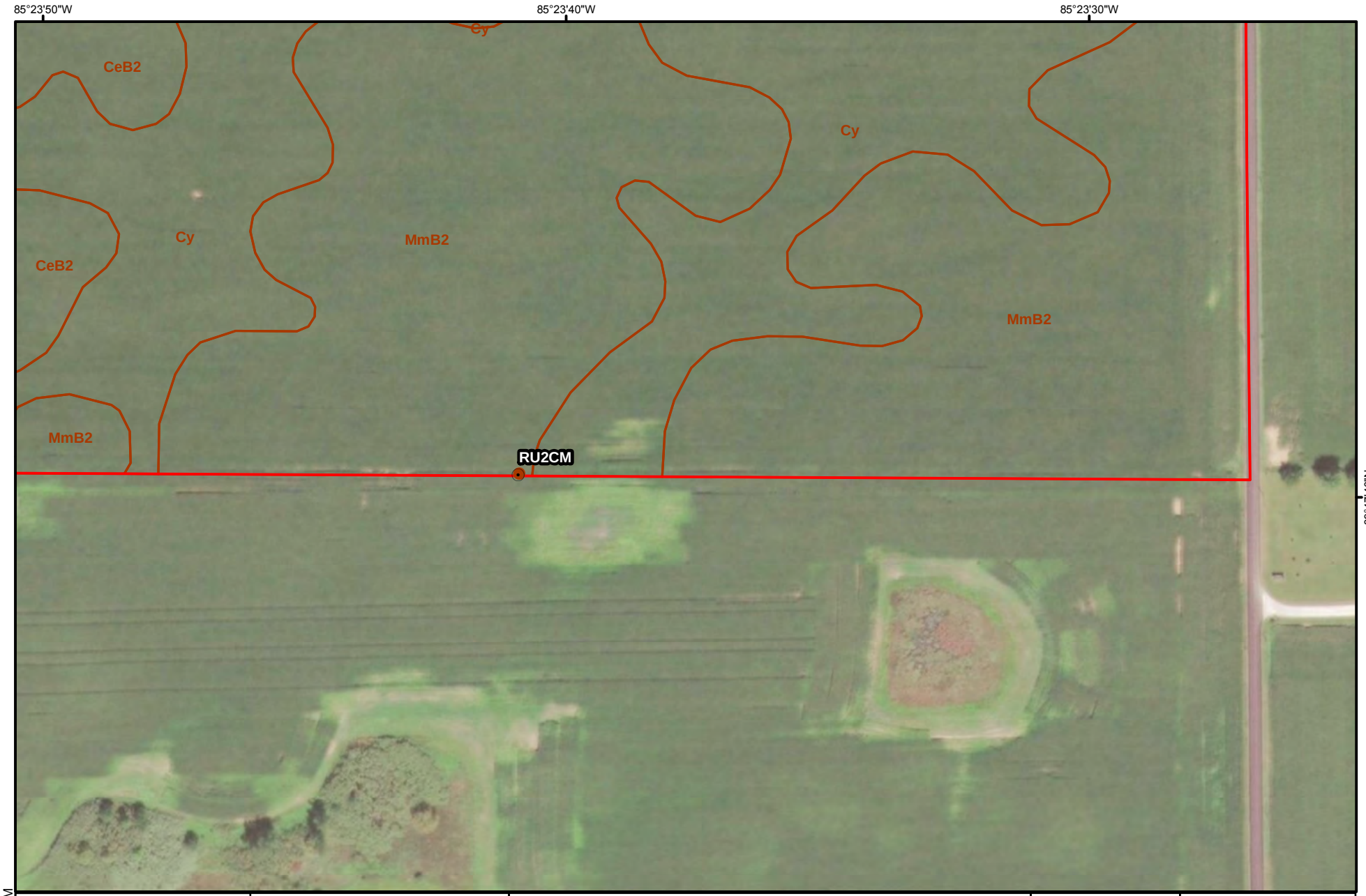


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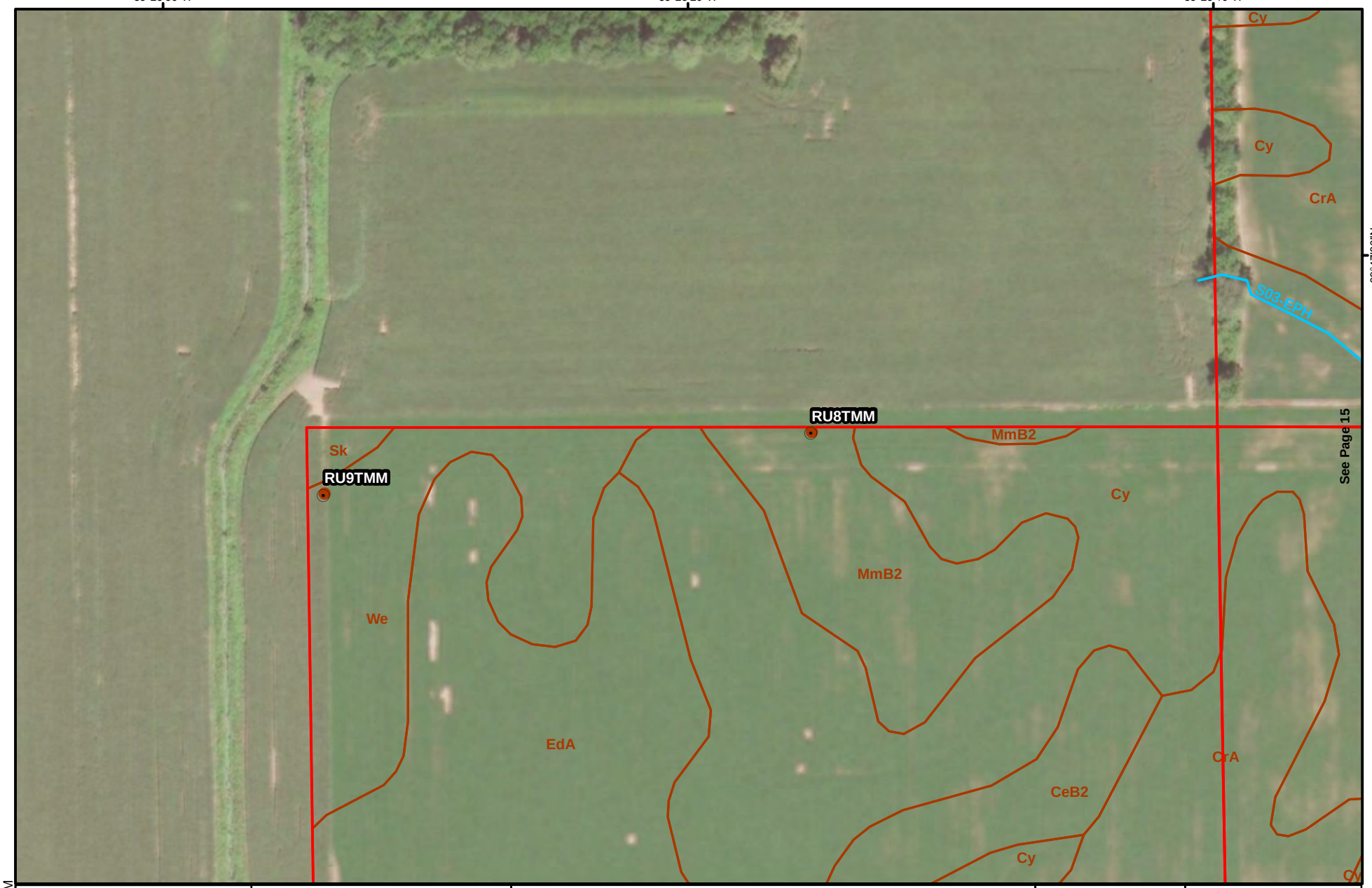


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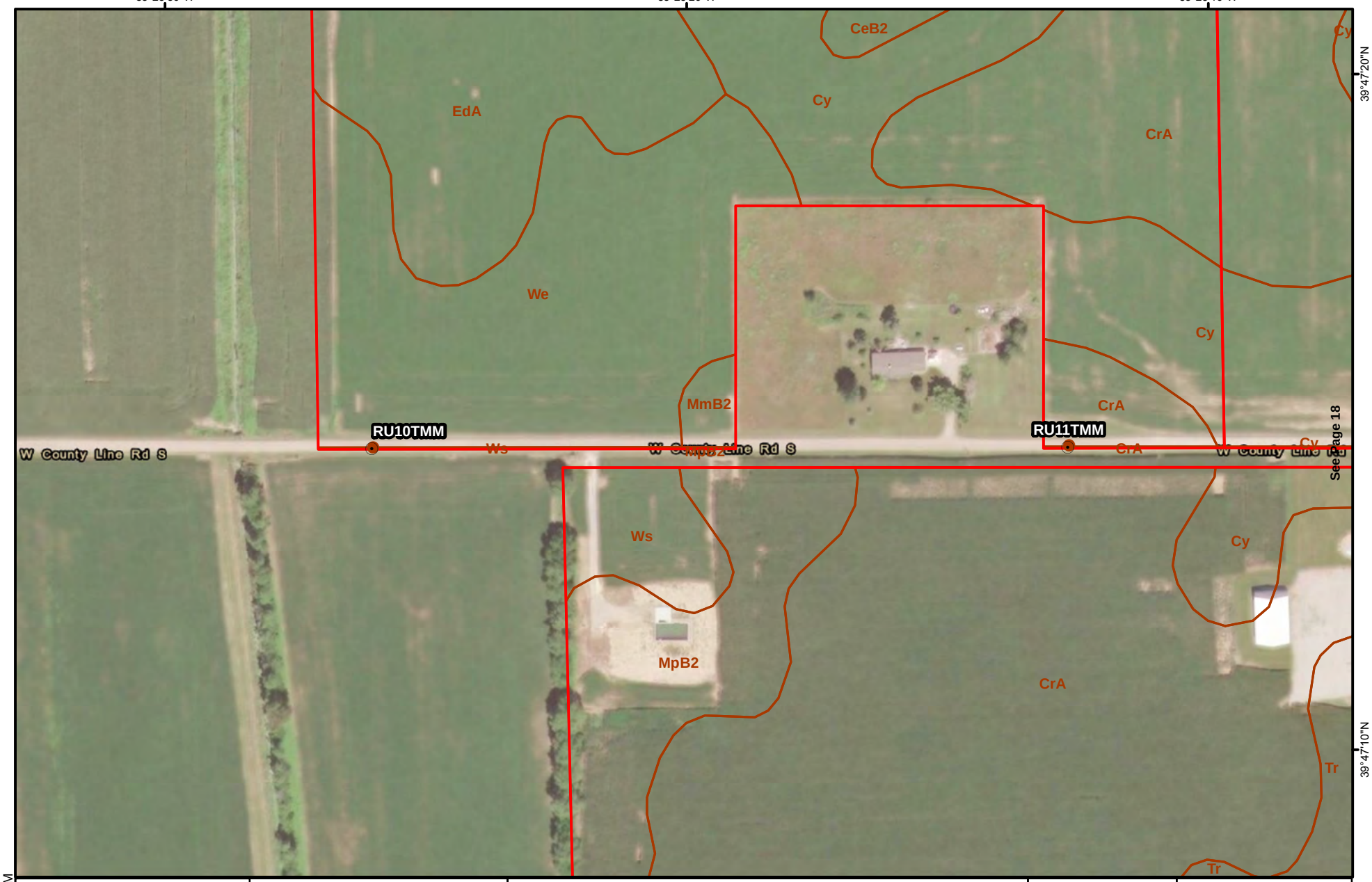


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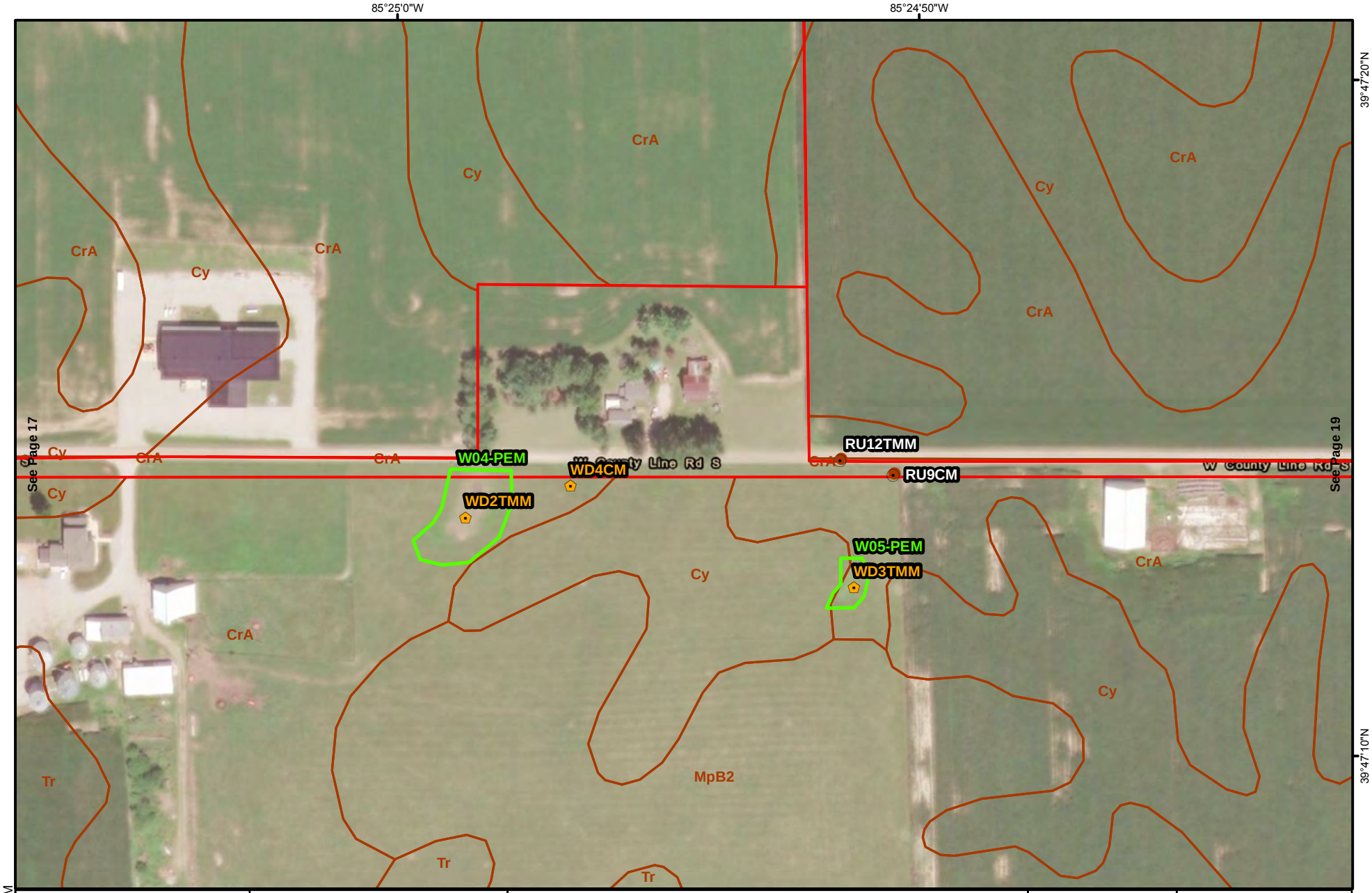


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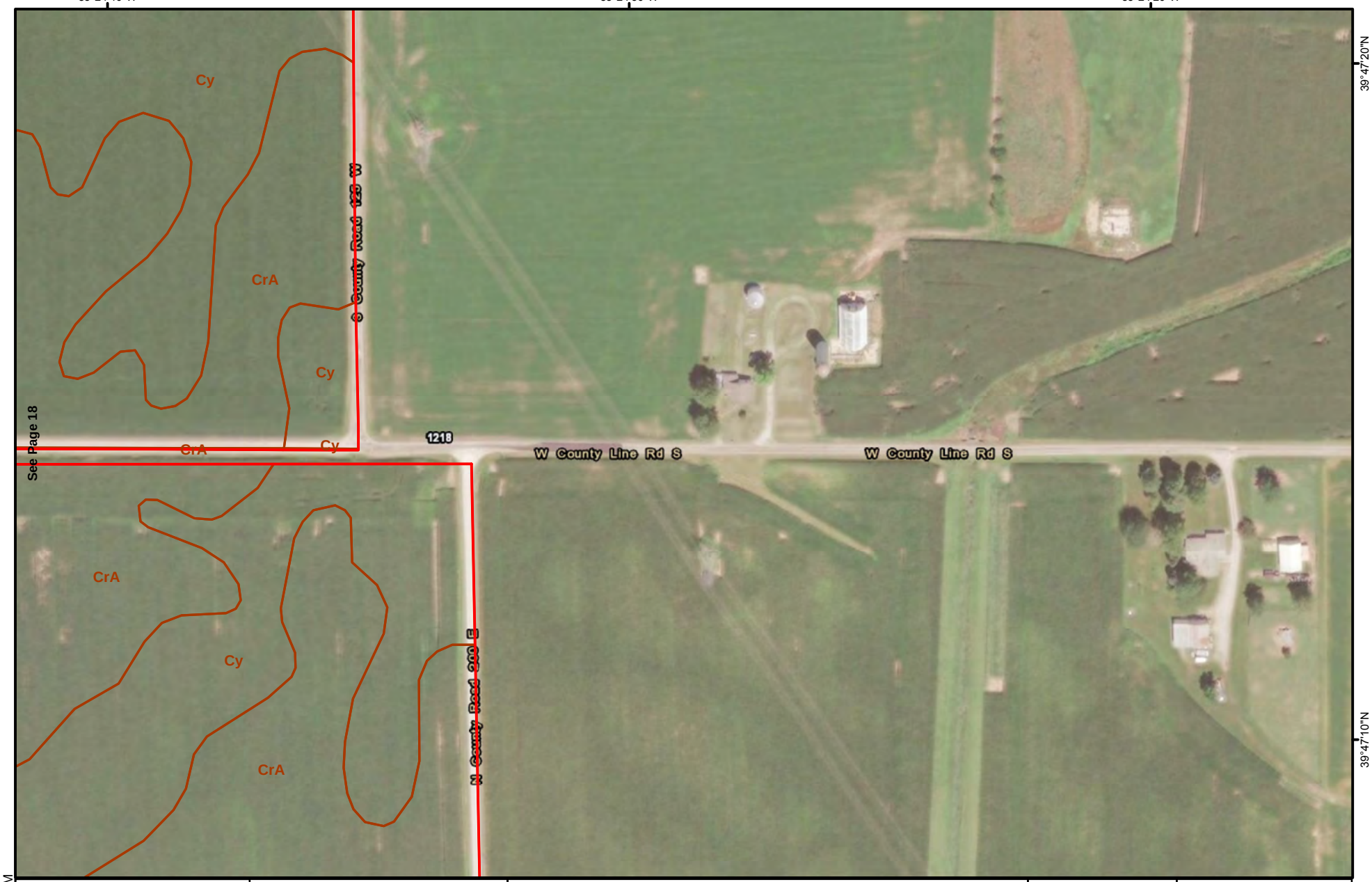


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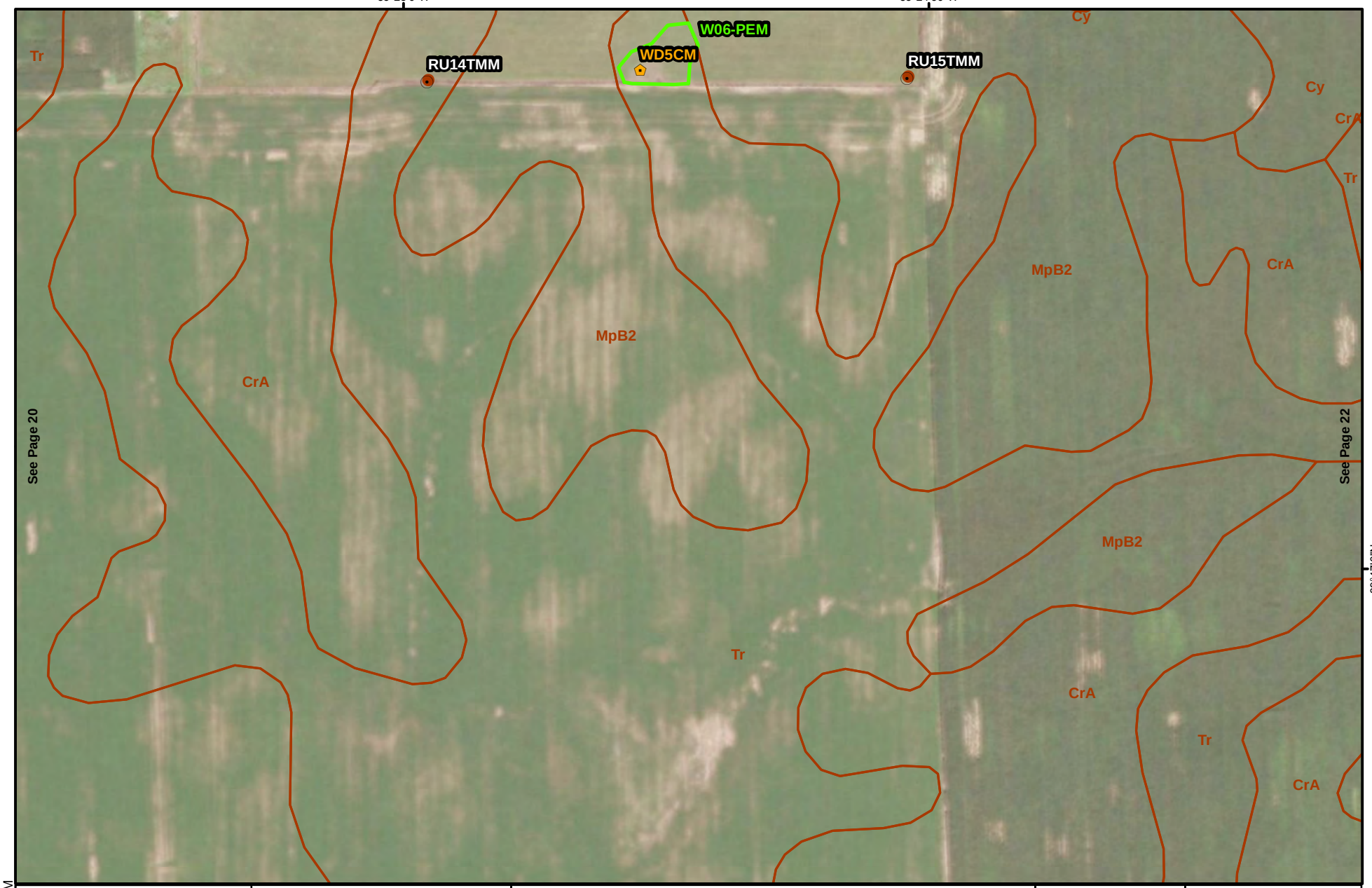


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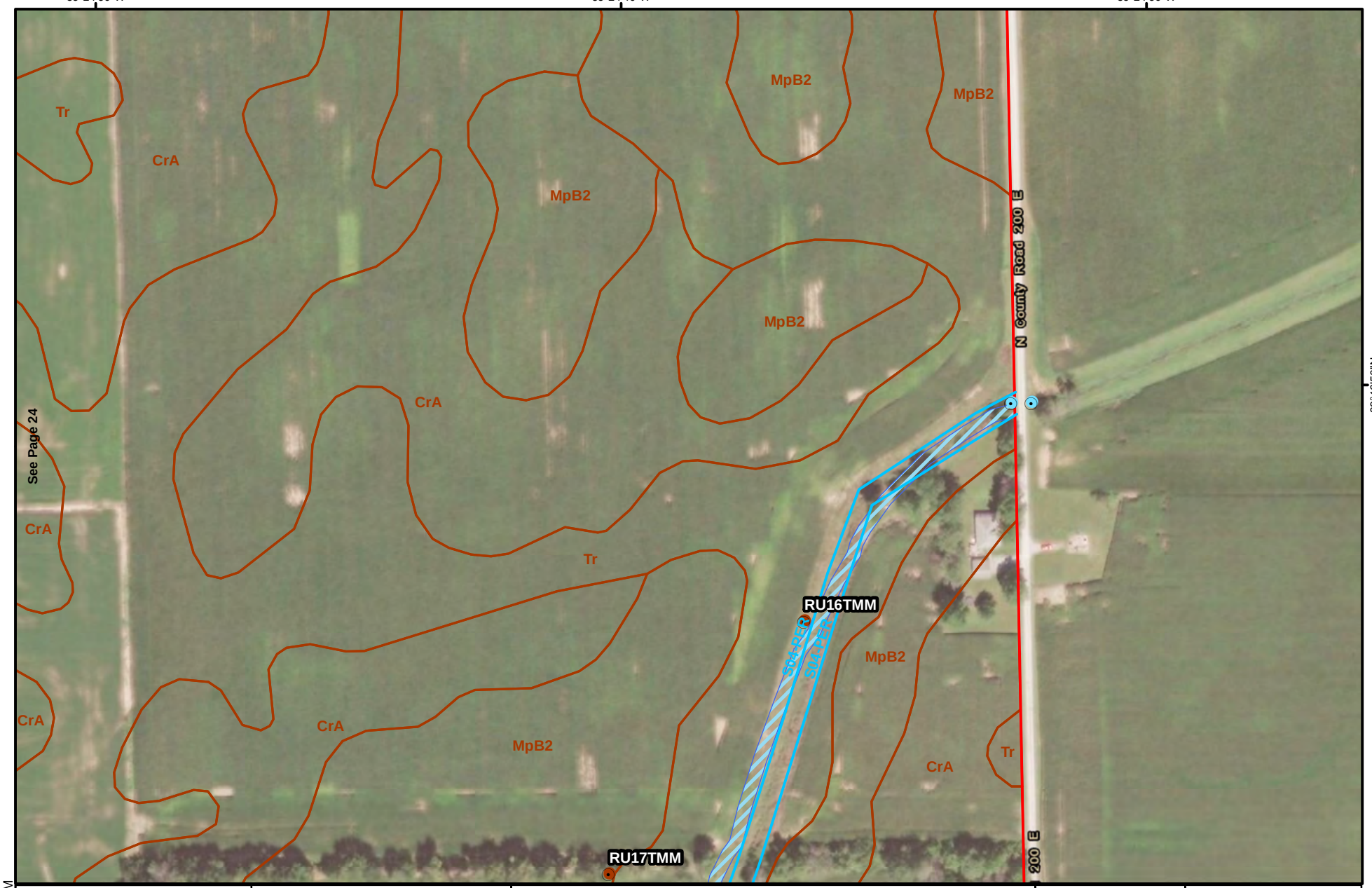


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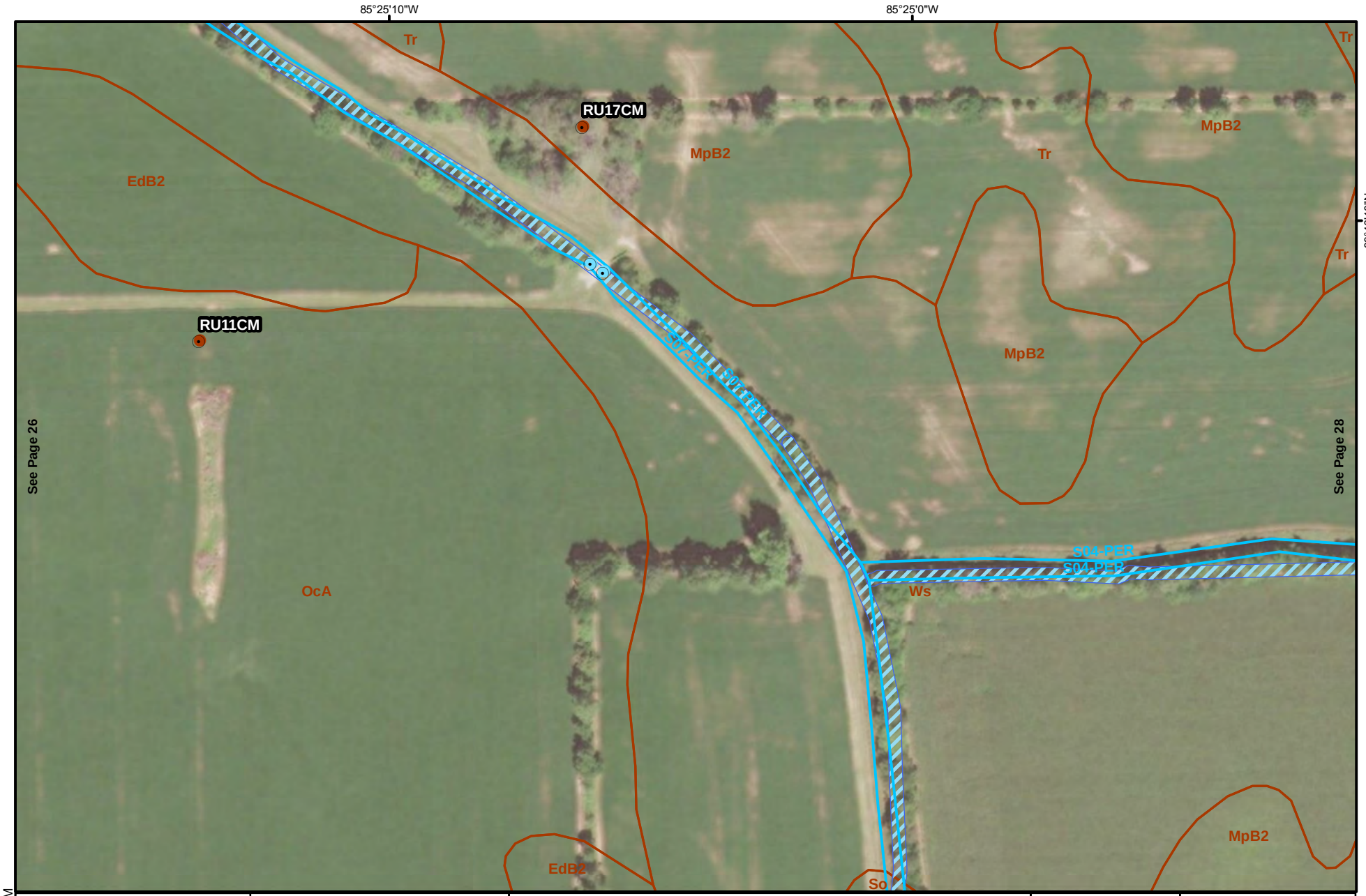


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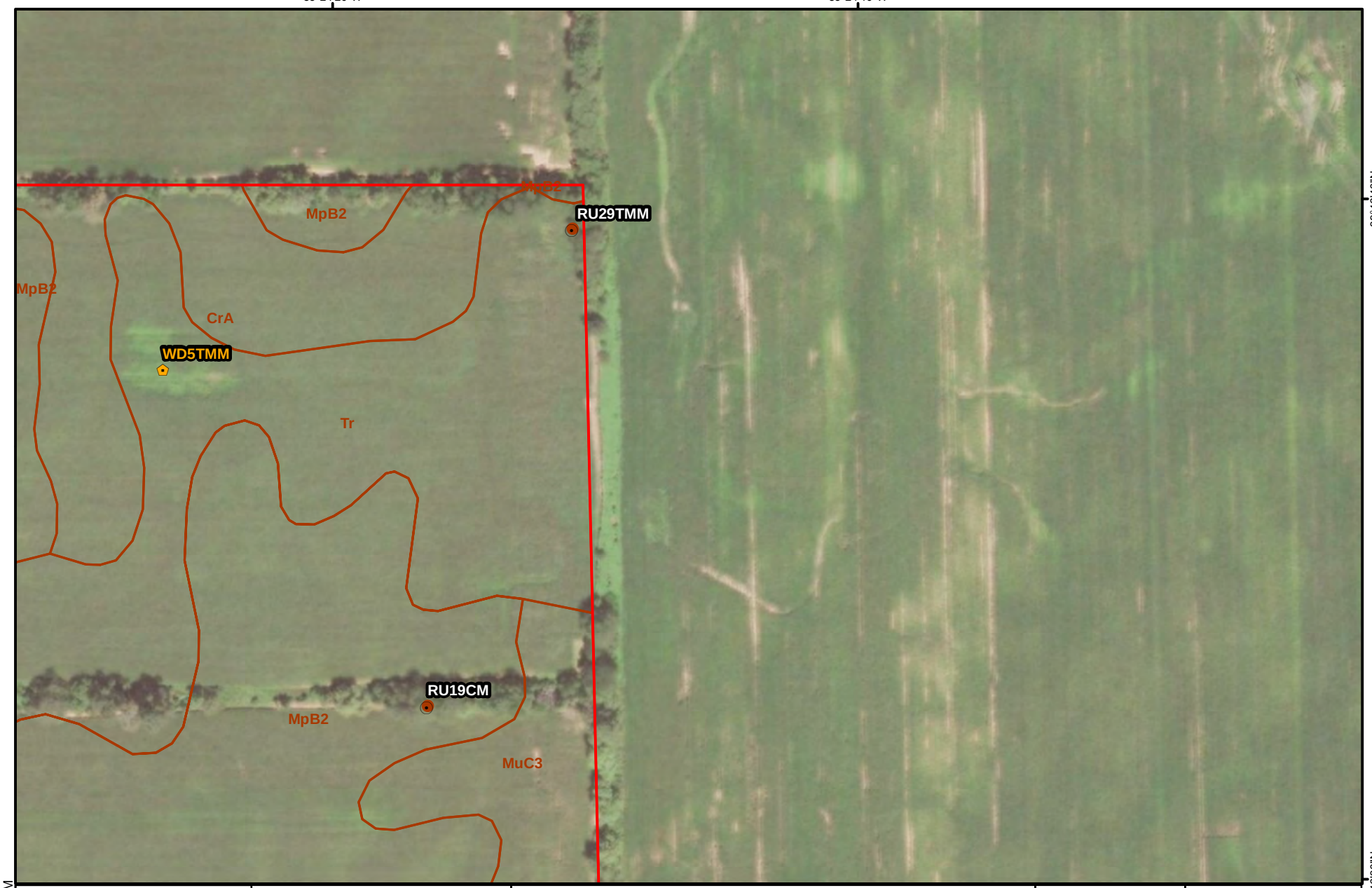


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- NRCS Soils
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Culvert
- Representative Upland
- Wetland Determination
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area
- USFWS NWI
- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 100 200 400

N W E S

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

MOTT MACDONALD
5295 S. Commerce Dr. Ste. 500
Salt Lake City, UT 84107
Ph: (801) 559-2716

Drawn By: JLM
Date: 10/15/2019



Date: 10/15/2019 11:25:22 AM


**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- USFWS NWI Wetlands
- NRCS Soils
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Culvert
- Representative Upland
- Wetland Determination
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
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# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

0 100 200 400 Feet

N W E S

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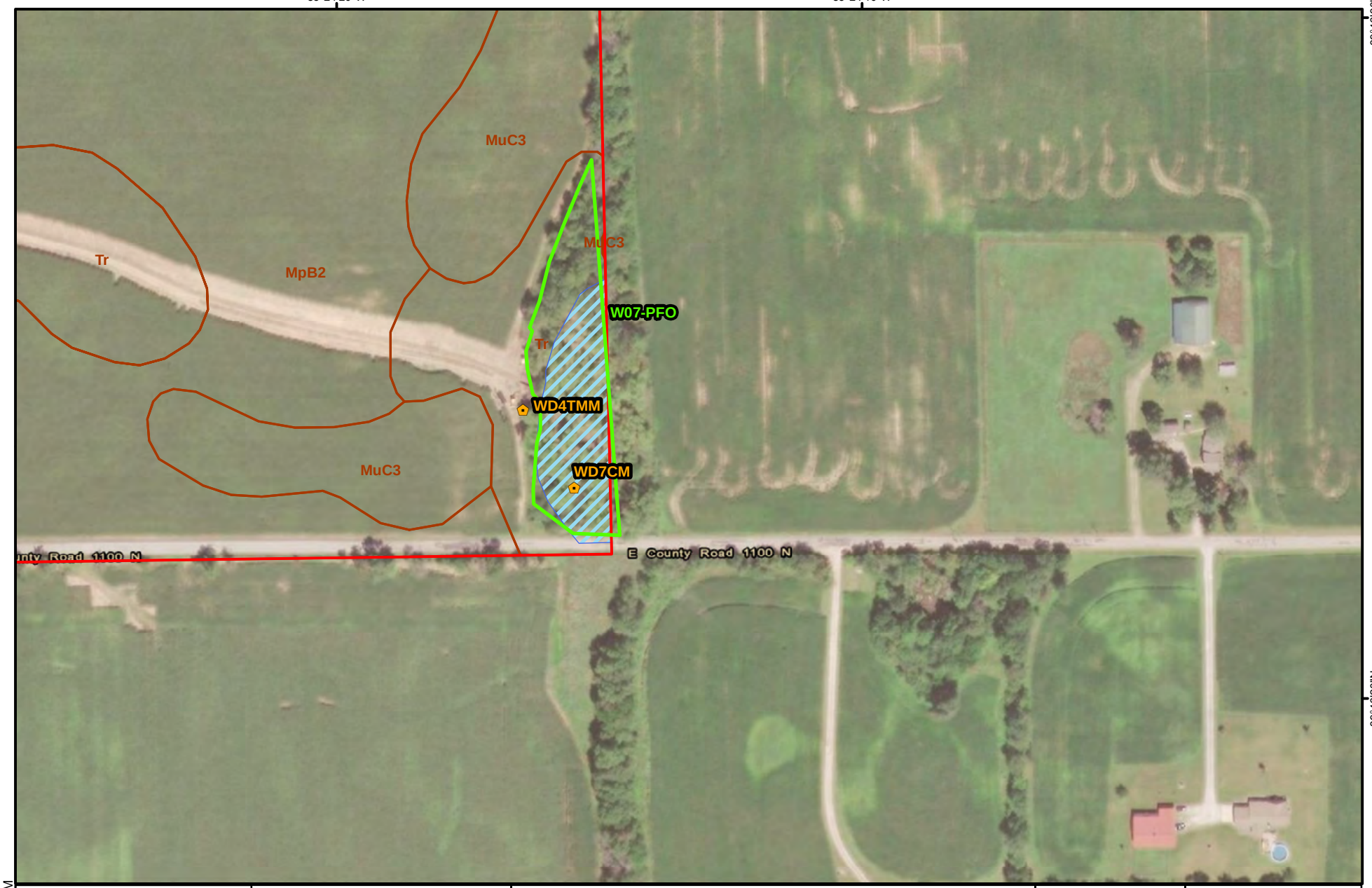
ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

Drawn By: JLM
Date: 10/15/2019



Date: 10/15/2019 11:25:22 AM




**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- USFWS NWI Wetlands
- NRCS Soils
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Culvert
- Representative Upland
- Wetland Determination
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area
- USFWS NWI
- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

0 100 200 400 Feet

N W E S

MOTT MACDONALD
5295 S. Commerce Dr. Ste. 500
Salt Lake City, UT 84107
Ph: (801) 559-2716

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

Drawn By: JLM
Date: 10/15/2019



Date: 10/15/2019 11:25:22 AM


**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- USFWS NWI Wetlands
- NRCS Soils
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Culvert
- Representative Upland
- Wetland Determination
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area
- USFWS NWI
- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

Feet
0 100 200 400

N W E S

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

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Salt Lake City, UT 84107
Ph: (801) 559-2716

Drawn By: JLM
Date: 10/15/2019



Date: 10/15/2019 11:25:22 AM


**Notes:**

Data Sources:
- Mott MacDonald Wetland Delineation
- USFWS NWI Wetlands
- NRCS Soils
- ESRI World Transporation
- ESRI World Imagery Layer

**Legend:**
- Culvert
- Representative Upland
- Wetland Determination
- Ditch Delineation
- Stream Delineation
- Wetland Delineation
- Project Study Area
- USFWS NWI
- NRCS Soils

# LIGHTSOURCE BP
# BELLFLOWER SOLAR PROJECT

## FIGURE 4.1-1

WETLAND & WATERBODY DELINEATION FIGURE
HENRY & RUSH COUNTIES, INDIANA

0 100 200 400 Feet

N W E S

ABSOLUTE SCALE: 1:2,400

REFERENCE SCALE: 1 IN = 200 feet

MOTT MACDONALD
5295 S. Commerce Dr. Ste. 500
Salt Lake City, UT 84107
Ph: (801) 559-2716

Drawn By: JLM
Date: 10/15/2019



Date: 10/15/2019 11:25:22 AM

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# B. USACE Wetland Determination Data Forms

# Upland Forms

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Henry | Sampling Date: 9/10/2019

Applicant/Owner: Light Source BP | State: IN | Sampling Point: WD003CM

Investigator(s): Carrie Maier, Sara Prizzi | Section, Township, Range: S33, T16N, R10E

Landform (hillside, terrace, etc.): flat | Local relief (concave, convex, none): convex

Slope (%): 1 | Lat: 39.794944 | Long: -85.417121 | Datum: NAD 83

Soil Map Unit Name: CrA, Crosby silt loam, 0 to 2 percent slopes | NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | **Is the Sampled Area within a Wetland?** **Yes** ____ **No** X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:
Sampled area in forested woodland adjacent to active agricultural fields.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Juglans nigra* | 60 | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 60 | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Solidago canadensis* | 40 | Yes | FACU |
| 2. *Ambrosia trifida* | 30 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 70 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. *Rubus argutus* | 2 | No | FAC |
| 2. *Parthenocissus quinquefolia* | 15 | Yes | FACU |
| | 17 | =Total Cover | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 32 | x 3 = | 96 |
| FACU species | 115 | x 4 = | 460 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 147 (A) | | 556 (B) |

Prevalence Index = B/A = 3.78

**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.

**Hydrophytic Vegetation Present?** **Yes** ____ **No** X

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

## SOIL

Sampling Point: WD003CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-5 | 10YR 3/2 | 100 | | | | | Loamy/Clayey | silty clay loam |
| 5-16 | 2.5Y 4/2 | 100 | | | | | Loamy/Clayey | silty clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

No hydrology present.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Rush | Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP | State: IN | Sampling Point: WD004CM

Investigator(s): Carrie Maier, Sara Prizzi | Section, Township, Range: S04, T15N, R10E

Landform (hillside, terrace, etc.): flat/agricultural field | Local relief (concave, convex, none): concave

Slope (%): <1 | Lat: 39.787231 | Long: -85.415763 | Datum: NAD 83

Soil Map Unit Name: CrA, Crosby silt loam, 0 to 2 percent slopes | NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | **Is the Sampled Area within a Wetland?** Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:
Area sampled in active, fenced-in pasture. Vegetation is brush hogged/maintained.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Datura stramonium* | 2 | No | UPL |
| 2. *Polygonum pensylvanicum* | 30 | Yes | FACW |
| 3. *Polygonum persicaria* | 5 | No | FACW |
| 4. *Ambrosia artemisiifolia* | 20 | Yes | FACU |
| 5. *Echinochloa crus-galli* | 5 | No | FACW |
| 6. *Solanum carolinense* | 5 | No | FACU |
| 7. *Cyperus esculentus* | 1 | No | FACW |
| 8. *Digitaria sanguinalis* | 30 | Yes | FACU |
| 9. | | | |
| 10. | | | |
| | 98 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. *Ipomoea purpurea* | 2 | No | FACU |
| 2. | | | |
| | 2 | =Total Cover | |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 41 | x 2 = | 82 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 57 | x 4 = | 228 |
| UPL species | 2 | x 5 = | 10 |
| Column Totals: | 100 (A) | | 320 (B) |

Prevalence Index = B/A = 3.20

**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.

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Disturbed due to being in active pasture where vegetation is grazed and brush hogged.

## SOIL

Sampling Point: WD004CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-18 | 10YR 3/2 | 100 | | | | | Loamy/Clayey | silty clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

No hydrology present.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower City/County: Rush Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP State: IN Sampling Point: WD004TMM

Investigator(s): T. Malecki Section, Township, Range: S03, T15N, R10E

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex

Slope (%): 3 Lat: 39.77341 Long: -85.404587 Datum: NAD 83

Soil Map Unit Name: Tr, Treaty silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | **Is the Sampled Area within a Wetland?** Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:
Site located between active soy field and wetland.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Gleditsia triacanthos* | 5 | Yes | FACU |
| 2. *Morus alba* | 10 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 15 | =Total Cover | |

| Sapling/Shrub Stratum (Plot size: 15) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |

| Herb Stratum (Plot size: 5) | | | |
|---|---|---|---|
| 1. *Glycine max* | 60 | Yes | UPL |
| 2. *Ambrosia trifida* | 40 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 | =Total Cover | |

| Woody Vine Stratum (Plot size: 30) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 60 | x 5 = | 300 |
| Column Totals: | 115 (A) | | 470 (B) |

Prevalence Index = B/A = 4.09

**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.

**Hydrophytic Vegetation Present?** Yes ____ No X

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

## SOIL

Sampling Point: WD004TMM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-3 | 2.5Y 5/3 | 100 | | | | | Loamy/Clayey | silt loam |
| 3-14 | 2.5Y 3/3 | 100 | | | | | Loamy/Clayey | clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: hard pan clay

Depth (inches): 14

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

Remarks:
tilled soils

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:
No wetland hydrology indicators observed.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower City/County: Rush Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP State: IN Sampling Point: WD005TMM

Investigator(s): T. Malecki Section, Township, Range: S03, T15N, R10E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 2 Lat: 39.777095 Long: -85.40647 Datum: NAD 83

Soil Map Unit Name: Tr, Treaty silty clay loam, 0 to 1 percent slopes NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** ____ **No** X |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:
Site is located in depression within an active soy field.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Echinochloa crus-galli* | 90 | Yes | FACW |
| 2. *Glycine max* | 5 | No | UPL |
| 3. *Cyperus rotundus* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | ____ =Total Cover | | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 90 | x 2 = | 180 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 100 (A) | | 220 (B) |

Prevalence Index = B/A = 2.20

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

____ 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.

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
10% unvegetated land

## SOIL

Sampling Point: WD005TMM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-6 | 5Y 3/2 | 97 | 7.5YR 5/6 | 3 | C | M | Loamy/Clayey | clay loam |
| 6-12 | 2.5Y 3/2 | 98 | 5Y 5/6 | 2 | C | M | Loamy/Clayey | clay loam |
| 12-20 | 5Y 3/1 | 95 | 10Y 4/4 | 5 | C | M | Loamy/Clayey | clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:
tilled soils

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:
No wetlandy hydrology indicators observed.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Rush | Sampling Date: 9/11/2019

Applicant/Owner: Carrie Maier, Sara Prizzi | State: IN | Sampling Point: WD006CM

Investigator(s): Carrie Maier, Sara Prizi | Section, Township, Range: S04, T15N, R10E

Landform (hillside, terrace, etc.): Flat | Local relief (concave, convex, none): concave

Slope (%): 1 | Lat: 39.779748 | Long: -85.426289 | Datum: NAD 83

Soil Map Unit Name: OcA, Ockley silt loam, 0 to 2 percent slopes | NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:
Sampled area in forested woodland adjacent to active agricultural field.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. *Acer rubrum* | 2 | No | FAC |
| 2. *Prunus serotina* | 5 | No | FACU |
| 3. *Morus alba* | 30 | Yes | FAC |
| 4. | | | |
| 5. | | | |
| | 37 =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Phytolacca americana* | 5 | No | FACU |
| 2. *Ageratina altissima* | 5 | No | FACU |
| 3. *Pilea pumila* | 30 | Yes | FACW |
| 4. *Ambrosia trifida* | 10 | Yes | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 50 =Total Cover | | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 30 | x 2 = | 60 |
| FAC species | 42 | x 3 = | 126 |
| FACU species | 15 | x 4 = | 60 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 87 (A) | | 246 (B) |

Prevalence Index = B/A = 2.83

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No ____

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

## SOIL

Sampling Point: WD006CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-2 | 10YR 3/3 | 100 | | | | | Loamy/Clayey | silt loam |
| 2-16 | 10YR 4/4 | 100 | | | | | Loamy/Clayey | silt loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ |
| Water Table Present? | Yes ___ | No X | Depth (inches): ___ |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): ___ |

**Wetland Hydrology Present?** **Yes** ___ **No** X

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

Remarks:

No hydrology present.

# Wetland Forms

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Henry | Sampling Date: 9/10/2019

Applicant/Owner: Light Source BP | State: IN | Sampling Point: WD001CM

Investigator(s): Carrie Maier, Sara Prizzi | Section, Township, Range: S34, T16N, R10E

Landform (hillside, terrace, etc.): flat/agricultural field | Local relief (concave, convex, none): concave

Slope (%): <1% | Lat: 39.794635 | Long: -85.40245 | Datum: NAD 83

Soil Map Unit Name: Cy, Cyclone silty clay loam, 0 to 2 percent slopes | NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Sampled area in active agricultural field adjacent to NWI mapped wetland. Vegetation significantly disturbed due to being in active cropland (corn).

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Echinochloa crus-galli* | 5 | No | FACW |
| 2. *Ambrosia trifida* | 10 | No | FAC |
| 3. *Cyperus esculentus* | 7 | No | FACW |
| 4. *Ageratina altissima* | 2 | No | FACU |
| 5. *Pilea pumila* | 30 | Yes | FACW |
| 6. *Setaria faberi* | 5 | No | FACU |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 59 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. *Toxicodendron radicans* | 2 | No | FAC |
| 2. | | | |
| | 2 | =Total Cover | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 42 | x 2 = | 84 |
| FAC species | 12 | x 3 = | 36 |
| FACU species | 7 | x 4 = | 28 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 61 (A) | | 148 (B) |

Prevalence Index = B/A = 2.43

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
In active agricultural field.

## SOIL

Sampling Point: WD001CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-7 | 2.5Y 3/2 | 100 | | | | | Loamy/Clayey | silt loam |
| 7-15 | 2.5Y 4/2 | 88 | 7.5YR 4/6 | 2 | C | PL | Loamy/Clayey | Prominent redox concentrations |
| | | | 10YR 6/2 | 10 | D | M | | sandy clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

Sampled area in agricultural field where crop (corn) failed to grow; northern extent of NWI mapped wetland.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower City/County: Henry Sampling Date: 9/10/2019

Applicant/Owner: Light Source BP State: IN Sampling Point: WD001TMM

Investigator(s): T. Malecki Section, Township, Range: S33, T16N, R10E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 1 Lat: 39.79604 Long: -85.417349 Datum: NAD83

Soil Map Unit Name: Cy, Cyclone silty clay loam, 0 to 2 percent slope NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Wetland is forested and located in depression adjacent to agricultural fields.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Populus deltoides* | 30 | Yes | FAC |
| 2. *Juglans nigra* | 10 | Yes | FACU |
| 3. *Fraxinus pennsylvanica* | 10 | Yes | FACW |
| 4. | | | |
| 5. | | | |
| | 50 | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. *Cephalanthus occidentalis* | 40 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 40 | =Total Cover | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Carex hystericina* | 10 | Yes | OBL |
| 2. *Persicaria hydropiperoides* | 25 | Yes | OBL |
| 3. *Carex vulpinoidea* | 10 | Yes | FACW |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 45 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 75 | x 1 = | 75 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 135 (A) | | 245 (B) |

Prevalence Index = B/A = 1.81

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: WD001TMM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-3 | 2.5Y 3/2 | 100 | | | | | Loamy/Clayey | silt loam |
| 3-6 | 5Y 3/1 | 93 | 7.5YR 4/3 | 7 | C | PL | Loamy/Clayey | clay loam |
| 6-12 | 5Y 3/1 | 90 | 5Y 4/3 | 10 | C | PL | Loamy/Clayey | clay loam |
| 12-17 | 2.5Y 3/1 | 95 | 2.5Y 4/3 | 5 | C | M | Loamy/Clayey | clay loam |
| 17-20 | 5Y 3/1 | 95 | 2.5Y 4/3 | 5 | C | M | Loamy/Clayey | clay |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

Water makrs on tree trunks indicate seasonal inundation.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Henry | Sampling Date: 9/10/2019

Applicant/Owner: Light Source BP | State: IN | Sampling Point: WD002CM

Investigator(s): Carrie Maier, Sara Prizzi | Section, Township, Range: S34, T16N, R10E

Landform (hillside, terrace, etc.): flat/agricultural field | Local relief (concave, convex, none): concave

Slope (%): <1% | Lat: 39.794614 | Long: -85.403994 | Datum: NAD 83

Soil Map Unit Name: Cy, Cyclone sility clay loam, 0 to 2 percent slopes | NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Sampled area in active agricultural field adjacent to NWI mapped wetland. Vegetation significantly disturbed due to being in active cropland (corn).

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Echinochloa crus-galli* | 15 | Yes | FACW |
| 2. *Ambrosia trifida* | 10 | No | FAC |
| 3. *Cyperus esculentus* | 7 | No | FACW |
| 4. *Ageratina altissima* | 2 | No | FACU |
| 5. *Pilea pumila* | 30 | Yes | FACW |
| 6. *Setaria faberi* | 10 | No | FACU |
| 7. *Panicum capillare* | 10 | No | FAC |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 84 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. *Toxicodendron radicans* | 2 | No | FAC |
| 2. | | | |
| | 2 | =Total Cover | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 52 | x 2 = | 104 |
| FAC species | 22 | x 3 = | 66 |
| FACU species | 12 | x 4 = | 48 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 86 (A) | | 218 (B) |

Prevalence Index = B/A = 2.53

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
In active agricultural field.

## SOIL

Sampling Point: WD002CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-5 | 2.5Y 3/2 | 100 | | | | | Loamy/Clayey | silt loam |
| 5-15 | 2.5Y 4/2 | 88 | 7.5YR 4/6 | 2 | C | PL | Loamy/Clayey | Prominent redox concentrations |
| | | | 10YR 6/2 | 10 | D | M | | sandy clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

Sampled area in agricultural field where crop (corn) failed to grow; northern extent of NWI mapped wetland.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower City/County: Rush Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP State: IN Sampling Point: WD002TMM

Investigator(s): T. Malecki Section, Township, Range: S04, T15N, R10E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 3 Lat: 39.787103 Long: -85.416322 Datum: NAD 83

Soil Map Unit Name: CrA, Crosby silt loam, 0 to 2 percent slopes NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Wetland located in active pasture in depression.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ | =Total Cover | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Echinochloa crus-galli* | 60 | Yes | FACW |
| 2. *Persicaria hydropiperoides* | 30 | Yes | OBL |
| 3. *Carex lurida* | 10 | No | OBL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | ____ | =Total Cover | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 160 (B) |

Prevalence Index = B/A = 1.60

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: WD002TMM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-6 | 2.5Y 3/2 | 90 | 5Y 3/1 | 10 | D | M | Loamy/Clayey | clay loam |
| 6-15 | 5Y 3/1 | 90 | 5YR 3/4 | 10 | C | PL | Loamy/Clayey | clay loam |
| 15-20 | 5Y 3/1 | 97 | 2.5Y 4/3 | 3 | C | M | Loamy/Clayey | clay |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

Hydrology provided by hillside runoff.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower City/County: Rush Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP State: IN Sampling Point: WD003TMM

Investigator(s): T. Malecki Section, Township, Range: S04, T15N, R10E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 1 Lat: 39.786811 Long: -85.414256 Datum: NAD 83

Soil Map Unit Name: CrA, Crosby silt loam, 0 to 2 percent slopes NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Depression within a pasture.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Echinochloa crus-galli* | 70 | Yes | FACW |
| 2. *Persicaria hydropiperoides* | 15 | No | OBL |
| 3. *Persicaria maculosa* | 5 | No | FACW |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 90 =Total Cover | | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 15 | x 1 = | 15 |
| FACW species | 75 | x 2 = | 150 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 90 (A) | | 165 (B) |

Prevalence Index = B/A = 1.83

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
10% unvegetated land

## SOIL

Sampling Point: WD003TMM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-7 | 5Y 3/2 | 93 | 5YR 6/8 | 7 | C | PL | Loamy/Clayey | clay loam |
| 7-11 | 5Y 2.5/2 | 95 | 2.5YR 5/8 | 5 | C | PL | Loamy/Clayey | clay loam |
| 11-16 | 2.5Y 5/1 | 100 | | | | | Loamy/Clayey | clay |
| 16-22 | 5Y 3/2 | 98 | 5YR 5/6 | 2 | C | PL | Loamy/Clayey | clay |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ 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)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 0

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

Hydrology provided by hillside runoff.

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Rush | Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP | State: IN | Sampling Point: WD005CM

Investigator(s): Carrie Maier, Sara Prizzi | Section, Township, Range: S04, T15N, R10E

Landform (hillside, terrace, etc.): agricultural field/hillslope | Local relief (concave, convex, none): concave

Slope (%): 2 | Lat: 39.785377 | Long: -85.415428 | Datum: NAD 83

Soil Map Unit Name: Tr, Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: Not mapped by NWI

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Area sampled in active, fenced-in pasture. Vegetation is brush hogged/maintained.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | =Total Cover | | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Ambrosia artemisiifolia* | 15 | No | FACU |
| 2. *Polygonum hydropiper* | 40 | Yes | OBL |
| 3. *Polygonum persicaria* | 5 | No | FACW |
| 4. *Trifolium repens* | 10 | No | FACU |
| 5. *Echinochloa crus-galli* | 30 | Yes | FACW |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 100 =Total Cover | | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | =Total Cover | | |

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 35 | x 2 = | 70 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 25 | x 4 = | 100 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 60 (A) | | 170 (B) |

Prevalence Index = B/A = 2.83

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: WD005CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-8 | 2.5Y 3/1 | 80 | 5YR 4/6 | 20 | C | PL | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | silty clay loam |
| 8-18 | 10YR 4/1 | 85 | 7.5YR 4/6 | 15 | C | PL | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | silty clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bellflower | City/County: Rush | Sampling Date: 9/11/2019

Applicant/Owner: Light Source BP | State: IN | Sampling Point: WD007CM

Investigator(s): Carrie Maier, Sara Prizzi | Section, Township, Range: S03, T15N, R10E

Landform (hillside, terrace, etc.): valley | Local relief (concave, convex, none): concave

Slope (%): 2 | Lat: 39.773093 | Long: -85.404318 | Datum: NAD 83

Soil Map Unit Name: Tr, Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: PSS1F

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Sampled area in forested valley between two active agricultural fields (soybean).

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix nigra* | 25 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 25 | =Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15)** | | | |
| 1. *Salix nigra* | 20 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 20 | =Total Cover | |
| **Herb Stratum (Plot size: 5)** | | | |
| 1. *Polygonum hydropiperoides* | 60 | Yes | OBL |
| 2. *Typha latifolia* | 6 | No | OBL |
| 3. *Bidens frondosa* | 20 | No | FACW |
| 4. *Xanthium strumarium* | 10 | No | FAC |
| 5. *Phalaris arundinacea* | 10 | No | FACW |
| 6. *Pilea pumila* | 10 | No | FACW |
| 7. *Cyperus esculentus* | 3 | No | FACW |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | 119 | =Total Cover | |
| **Woody Vine Stratum (Plot size: 30)** | | | |
| 1. | | | |
| 2. | | | |
| | | =Total Cover | |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 51 | x 1 = | 51 |
| FACW species | 43 | x 2 = | 86 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 104 (A) | | 167 (B) |

Prevalence Index = B/A = 1.61

**Hydrophytic Vegetation Indicators:**

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** **Yes** X **No** ____

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

## SOIL

Sampling Point: WD007CM

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-8 | 10YR 3/2 | 93 | 7.5YR 4/6 | 7 | C | PL | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | silty clay loam |
| 8-16 | 10YR 2/2 | 60 | 2.5YR 4/6 | 40 | C | PL | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | silty clay loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ? Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type: none

Depth (inches): ___

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

Remarks:

## 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)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

**Wetland Hydrology Present?** **Yes** X **No** ___

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

Remarks:

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# C. Field Survey Site Photographs

MOTT MACDONALD

# Light Source BP – Bellflower Solar Project
# Culvert Plot Photographs
# September 10–11, 2019

*CV001CM Bearing: WEST Date: 09/11/2019*

*CV001TMM Bearing: OUTLET Date: 09/11/2019*

*CV002TMM Bearing INLET Date: 09/11/2019*

*CV003TMM Bearing: OUTLET Date: 09/11/2019*

*CV004TMM Bearing: OUTLET Date: 09/11/2019*

*CV005TMM Bearing: OUTLET Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Culvert Plot Photographs
# September 10–11, 2019

*CV006TMM Bearing: OUTLET Date: 09/11/2019*

*CV007TMM Bearing: OUTLET Date: 09/11/2019*

*CV008TMM Bearing: OUTLET Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Habitat Observation Plot Photographs
# September 10–11, 2019

*HO001CM Bearing: SOUTHWEST Date: 09/10/2019*

*HO001TMM Bearing: NO BEARING Date: 09/10/2019*

*HO001TMM Bearing: NO BEARING Date: 09/10/2019*

*HO002TMM Bearing: NO BEARING Date: 09/11/2019*

*HO003TMM Bearing: NO BEARING Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Stream Crossing Plot Photographs
# September 10–11, 2019

*S01-EPH; SC001TMM Bearing: DOWNSTREAM Date: 09/10/2019*

*S01-EPH; SC001TMM Bearing: ACROSS Date: 09/10/2019*

*S01-EPH; SC001TMM Bearing: UPSTREAM Date: 09/10/2019*

*S02-EPH; SC002TMM Bearing: ACROSS Date: 09/10/2019*

*S02-EPH; SC002TMM Bearing: DOWNSTREAM Date: 09/10/2019*

*S02-EPH; SC002TMM Bearing: UPSTREAM Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Stream Crossing Plot Photographs
# September 10–11, 2019

*S03-EPH; SC003TMM Bearing: ACROSS Date: 09/10/2019*

*S03-EPH; SC003TMM Bearing: UPSTREAM Date: 09/10/2019*

*S03-EPH; SC003TMM Bearing: DOWNSTREAM Date: 09/10/2019*

*S04-PER; SC004TMM Bearing: ACROSS Date: 09/11/2019*

*S04-PER; SC004TMM Bearing: UPSTREAM Date: 09/11/2019*

*S04-PER; SC004TMM Bearing: NO BEARING Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Stream Crossing Plot Photographs
# September 10–11, 2019

*S04-PER; SC004TMM Bearing: DOWNSTREAM Date: 09/11/2019*

*S05-INT; SC005TMM Bearing: ACROSS Date: 09/11/2019*

*S05-INT; SC005TMM Bearing: UPSTREAM Date: 09/11/2019*

*S05-INT; SC005TMM Bearing: DOWNSTREAM Date: 09/11/2019*

*S06-EPH; SC006TMM Bearing: ACROSS Date: 09/11/2019*

*S06-EPH; SC006TMM Bearing: DOWNSTREAM Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Stream Crossing Plot Photographs
# September 10–11, 2019

*S06-EPH; SC006TMM  Bearing: UPSTREAM  Date: 09/11/2019*

*S07-PER; SC007TMM  Bearing: ACROSS  Date: 09/11/2019*

*S07-PER; SC007TMM  Bearing: UPSTREAM  Date: 09/11/2019*

*S07-PER; SC007TMM  Bearing: DOWNSTREAM  Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Structure Plot Photographs
# September 10–11, 2019

*ST001CM Bearing: SOUTHWEST Date: 09/10/2019*

*ST001TMM Bearing: NORTH Date: 09/10/2019*

*ST002TMM Bearing: NORTH Date: 09/11/2019*

*ST002TMM Bearing: SOUTH Date: 09/11/2019*

*ST003TMM Bearing: NORTH Date: 09/11/2019*

*ST003TMM Bearing: WEST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU001CM Bearing: NORTH Date: 09/10/2019*

*RU001CM Bearing: SOUTH Date: 09/10/2019*

*RU001TMM Bearing: EAST Date: 09/10/2019*

*RU001TMM Bearing: SOIL Date: 09/10/2019*

*RU001TMM Bearing: WEST Date: 09/10/2019*

*RU002CM Bearing: EAST Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU002CM Bearing: WEST Date: 09/10/2019*

*RU002TMM Bearing: EAST Date: 09/10/2019*

*RU002TMM Bearing: SOIL Date: 09/10/2019*

*RU002TMM Bearing: WEST Date: 09/10/2019*

*RU003CM Bearing: EAST Date: 09/10/2019*

*RU003CM Bearing: SOIL Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU003CM Bearing: WEST Date: 09/10/2019*

*RU003TMM Bearing: EAST Date: 09/10/2019*

*RU003TMM Bearing: SOIL Date: 09/10/2019*

*RU003TMM Bearing: WEST Date: 09/10/2019*

*RU004CM Bearing: EAST Date: 09/10/2019*

*RU004CM Bearing: WEST Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU004TMM Bearing: EAST Date: 09/10/2019*

*RU004TMM Bearing: SOIL Date: 09/10/2019*

*RU004TMM Bearing: WEST Date: 09/10/2019*

*RU005CM Bearing: EAST Date: 09/10/2019*

*RU005CM Bearing: SOUTH Date: 09/10/2019*

*RU005TMM Bearing: EAST Date: 09/10/2019*

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# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU005TMM Bearing: SOIL Date: 09/10/2019*

*RU005TMM Bearing: WEST Date: 09/10/2019*

*RU006CM Bearing: EAST Date: 09/10/2019*

*RU006CM Bearing: SOIL Date: 09/10/2019*

*RU006CM Bearing: WEST Date: 09/10/2019*

*RU006TMM Bearing: SOIL Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU006TMM Bearing: NORTHWEST Date: 09/10/2019*

*RU006TMM Bearing: WEST Date: 09/10/2019*

*RU007CM Bearing: EAST Date: 09/10/2019*

*RU007CM Bearing: SOIL Date: 09/10/2019*

*RU007CM Bearing: WEST Date: 09/10/2019*

*RU007TMM Bearing: EAST Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU007TMM Bearing: SOIL Date: 09/10/2019*

*RU007TMM Bearing: WEST Date: 09/10/2019*

*RU008TMM Bearing: NORTH Date: 09/10/2019*

*RU008TMM Bearing: SOIL Date: 09/10/2019*

*RU008TMM Bearing: SOUTH Date: 09/10/2019*

*RU009TMM Bearing: EAST Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

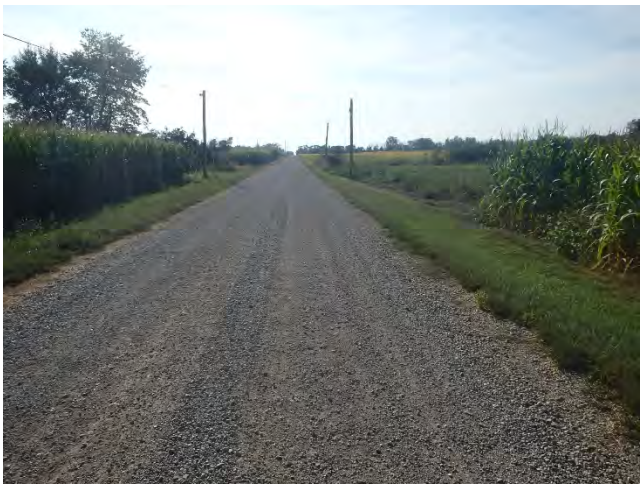
*RU009TMM Bearing: SOIL Date: 09/10/2019*

*RU009TMM Bearing: NORTHWEST Date: 09/10/2019*

*RU010CM Bearing: NORTH Date: 09/11/2019*

*RU010CM Bearing: SOIL Date: 09/11/2019*

*RU010CM Bearing: SOUTH Date: 09/11/2019*



*RU010TMM Bearing: EAST Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU010TMM Bearing: WEST Date: 09/10/2019*

*RU011CM Bearing: NORTH Date: 09/11/2019*

*RU011CM Bearing: SOUTH Date: 09/11/2019*

*RU011TMM Bearing: SOUTHEAST Date: 09/10/2019*

*RU011TMM Bearing: WEST Date: 09/10/2019*

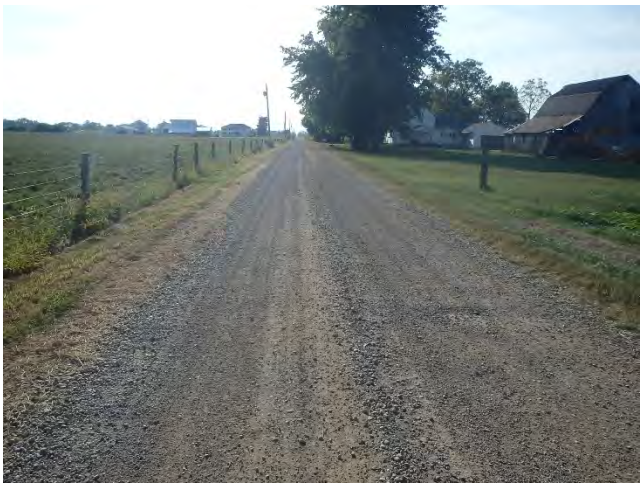
*RU012CM Bearing: SOIL Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU012CM Bearing: SOUTH Date: 09/11/2019*

*RU012CM Bearing: WEST Date: 09/11/2019*

*RU012TMM Bearing: EAST Date: 09/10/2019*



*RU012TMM Bearing: WEST Date: 09/10/2019*

*RU013CM Bearing: EAST Date: 09/11/2019*

*RU013CM Bearing: SOIL Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU013CM Bearing: WEST Date: 09/11/2019*

*RU013TMM Bearing: NORTH Date: 09/10/2019*

*RU013TMM Bearing: SOUTHEAST Date: 09/10/2019*

*RU014CM Bearing: EAST Date: 09/11/2019*

*RU014CM Bearing: SOIL Date: 09/11/2019*

*RU014CM Bearing: WEST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU014TMM Bearing: NORTH Date: 09/11/2019*

*RU014TMM Bearing: SOIL Date: 09/11/2019*

*RU014TMM Bearing: SOUTH Date: 09/11/2019*

*RU015CM Bearing: EAST Date: 09/11/2019*

*RU015CM Bearing: SOIL Date: 09/11/2019*

*RU015CM Bearing: WEST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU015TMM Bearing: NORTH Date: 09/11/2019*

*RU015TMM Bearing: SOIL Date: 09/11/2019*

*RU015TMM Bearing: SOUTH Date: 09/11/2019*

*RU016TMM Bearing: EAST Date: 09/11/2019*

*RU016TMM Bearing: WEST Date: 09/11/2019*

*RU017CM Bearing: EAST Date: 09/11/2019*

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# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU017CM Bearing: SOIL Date: 09/11/2019*

*RU017CM Bearing: WEST Date: 09/11/2019*

*RU017TMM Bearing: NORTH Date: 09/11/2019*

*RU017TMM Bearing: SOUTH Date: 09/11/2019*

*RU018CM Bearing: EAST Date: 09/11/2019*

*RU018CM Bearing: SOIL Date: 09/11/2019*

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# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU018CM Bearing: WEST Date: 09/11/2019*

*RU018TMM Bearing: EAST Date: 09/11/2019*

*RU018TMM Bearing: WEST Date: 09/11/2019*

*RU019CM Bearing: EAST Date: 09/11/2019*

*RU019CM Bearing: SOIL Date: 09/11/2019*

*RU019CM Bearing: WEST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU019TMM Bearing: EAST Date: 09/11/2019*

*RU019TMM Bearing: WEST Date: 09/11/2019*

*RU020CM Bearing: EAST Date: 09/11/2019*

*RU020CM Bearing: SOIL Date: 09/11/2019*

*RU020CM Bearing: WEST Date: 09/11/2019*

*RU020TMM Bearing: NORTH Date: 09/11/2019*

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# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU020TMM Bearing: SOUTH Date: 09/11/2019*

*RU021TMM Bearing: EAST Date: 09/11/2019*

*RU021TMM Bearing: WEST Date: 09/11/2019*

*RU022TMM Bearing: EAST Date: 09/11/2019*

*RU022TMM Bearing: WEST Date: 09/11/2019*

*RU023TMM Bearing: EAST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU023TMM Bearing: SOIL Date: 09/11/2019*

*RU023TMM Bearing: WEST Date: 09/11/2019*

*RU024TMM Bearing: EAST Date: 09/11/2019*

*RU024TMM Bearing: WEST Date: 09/11/2019*

*RU025TMM Bearing: NORTH Date: 09/11/2019*

*RU025TMM Bearing: WEST Date: 09/11/2019*

MOTT MACDONALD

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU026TMM Bearing: NORTH Date: 09/11/2019*

*RU026TMM Bearing: SOUTHWEST Date: 09/11/2019*

*RU027TMM Bearing: EAST Date: 09/11/2019*

*RU027TMM Bearing: WEST Date: 09/11/2019*

*RU028TMM Bearing: NORTHEAST Date: 09/11/2019*

*RU028TMM Bearing: NORTHWEST Date: 09/11/2019*

MOTT MACDONALD

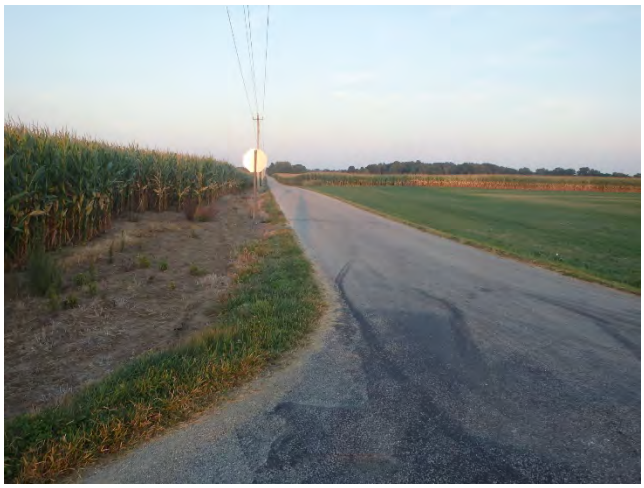
# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU029TMM Bearing: NORTHWEST Date: 09/11/2019*

*RU029TMM Bearing: SOUTH Date: 09/11/2019*

*RU031TMM Bearing: NORTH Date: 09/11/2019*

*RU031TMM Bearing: SOUTH Date: 09/11/2019*



*RU032TMM Bearing: EAST Date: 09/11/2019*

*RU032TMM Bearing: NORTH Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*RU032TMM Bearing: NORTHEAST Date: 09/11/2019*

*WD003CM Bearing: NORTH Date: 09/10/2019*

*WD003CM Bearing: SOIL Date: 09/10/2019*

*WD003CM Bearing: SOUTH Date: 09/10/2019*

*WD004CM Bearing: SOIL Date: 09/11/2019*

*WD004CM Bearing: NORTHWEST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*WD004CM Bearing: SOUTHEAST Date: 09/11/2019*

*WD004TMM Bearing: EAST Date: 09/11/2019*

*WD004TMM Bearing: SOIL Date: 09/11/2019*

*WD004TMM Bearing: WEST Date: 09/11/2019*

*WD005TMM Bearing: EAST Date: 09/11/2019*

*WD005TMM Bearing: SOIL Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Upland Plot Photographs
# September 10–11, 2019

*WD005TMM Bearing: WEST Date: 09/11/2019*

*WD006CM Bearing: EAST Date: 09/11/2019*

*WD006CM Bearing: SOIL Date: 09/11/2019*

*WD006CM Bearing: WEST Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Wetland Plot Photographs
# September 10–11, 2019

*W01-PFO; WD001TMM Bearing: NORTH Date: 09/10/2019*

*W01-PFO; WD001TMM Bearing: SOIL Date: 09/10/2019*

*W01-PFO; WD001TMM Bearing: SOUTH Date: 09/10/2019*

*W02-PEM; WD002CM Bearing: EAST Date: 09/10/2019*

*W02-PEM; WD002CM Bearing: SOIL Date: 09/10/2019*

*W02-PEM; WD002CM Bearing: WEST Date: 09/10/2019*

# Light Source BP – Bellflower Solar Project
# Wetland Plot Photographs
# September 10–11, 2019

*W03-PEM; WD001CM  Bearing: EAST  Date: 09/10/2019*

*W03-PEM; WD001CM  Bearing: SOIL  Date: 09/10/2019*

*W03-PEM; WD001CM  Bearing: WEST  Date: 09/10/2019*

*W04-PEM; WD002TMM  Bearing: NORTH  Date: 09/11/2019*

*W04-PEM; WD002TMM  Bearing: SOIL  Date: 09/11/2019*

*W04-PEM; WD002TMM  Bearing: SOUTH  Date: 09/11/2019*

MOTT MACDONALD

# Light Source BP – Bellflower Solar Project
# Wetland Plot Photographs
# September 10–11, 2019

*W05-PEM; WD003TMM Bearing: NORTH Date: 09/11/2019*

*W05-PEM; WD003TMM Bearing: SOIL Date: 09/11/2019*

*W05-PEM; WD003TMM Bearing: NORTHWEST Date: 09/11/2019*

*W06-PEM; WD005CM Bearing: NORTH Date: 09/11/2019*

*W06-PEM; WD005CM Bearing: SOIL Date: 09/11/2019*

*W06-PEM; WD005CM Bearing: SOUTH Date: 09/11/2019*

# Light Source BP – Bellflower Solar Project
# Wetland Plot Photographs
# September 10–11, 2019

*W07-PFO; WD007CM  Bearing: NORTH  Date: 09/11/2019*

*W07-PFO; WD007CM  Bearing: SOIL  Date: 09/11/2019*

*W07-PFO; WD007CM  Bearing: SOUTH  Date: 09/11/2019*

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# D. NRCS Soil Map Unit Descriptions

# Map Unit Description (Brief, Generated)

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 in this report, along with the maps, provide information on the composition of map units and properties of their components.

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.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

# Report—Map Unit Description (Brief, Generated)

## Henry County, Indiana

**Map Unit:** CeB2—Celina silt loam, 2 to 6 percent slopes, eroded

**Component:** Celina, eroded (90%)

The Celina, eroded component makes up 90 percent of the map unit. Slopes are 2 to 6 percent. This component is on Wisconsin ground moraines, Wisconsin till plains. The parent material consists of silty material or loess over loamy till. Depth to a root restrictive layer, densic material, is 20 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, May, June, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 33 percent.

**Component:** Crosby (4%)

Generated brief soil descriptions are created for major soil components. The Crosby soil is a minor component.

**Component:** Kokomo (4%)

Generated brief soil descriptions are created for major soil components. The Kokomo soil is a minor component.

**Component:** Miamian (2%)

Generated brief soil descriptions are created for major soil components. The Miamian soil is a minor component.

**Map Unit:** CrA—Crosby silt loam, 0 to 2 percent slopes

**Component:** Crosby (85%)

The Crosby component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on Wisconsin ground moraines, till plains. The parent material consists of silty material or loess over loamy till. Depth to a root restrictive layer, densic material, is 24 to 40 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 35 percent.

**Component:** Williamstown, eroded (8%)

Generated brief soil descriptions are created for major soil components. The Williamstown soil is a minor component.

**Component:** Treaty, drained (7%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

**Map Unit:** Cy—Cyclone silty clay loam, 0 to 2 percent slopes

**Component:** Cyclone (83%)

The Cyclone component makes up 83 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains on till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 2 inches during January, February, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria.

**Component:** Xenia (5%)

Generated brief soil descriptions are created for major soil components. The Xenia soil is a minor component.

**Component:** Fincastle (5%)

Generated brief soil descriptions are created for major soil components. The Fincastle soil is a minor component.

**Component:** Sugarvalley (3%)

Generated brief soil descriptions are created for major soil components. The Sugarvalley soil is a minor component.

**Component:** Starks (2%)

Generated brief soil descriptions are created for major soil components. The Starks soil is a minor component.

**Component:** Morningsun (2%)

Generated brief soil descriptions are created for major soil components. The Morningsun soil is a minor component.

**Map Unit:** EdA—Eldean silt loam, 0 to 2 percent slopes

**Component:** Eldean (85%)

The Eldean component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash terraces on outwash plains. The parent material consists of loamy outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 52 percent.

**Component:** Westland (5%)

Generated brief soil descriptions are created for major soil components. The Westland soil is a minor component.

**Component:** Ockley (5%)

Generated brief soil descriptions are created for major soil components. The Ockley soil is a minor component.

**Component:** Sleeth (3%)

Generated brief soil descriptions are created for major soil components. The Sleeth soil is a minor component.

**Component:** Thackery (2%)

Generated brief soil descriptions are created for major soil components. The Thackery soil is a minor component.

**Map Unit:** LeB2—Losantville silt loam, 2 to 6 percent slopes, eroded

**Component:** Losantville (97%)

The Losantville component makes up 97 percent of the map unit. Slopes are 2 to 6 percent. This component is on till plains. The parent material consists of loamy till. Depth to a root restrictive layer, densic material, is 12 to 20 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 38 percent.

**Component:** Treaty (3%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

**Map Unit:** MlA—Miami silt loam, gravelly substratum, 0 to 2 percent slopes

**Component:** Miami, gravelly substratum (97%)

The Miami, gravelly substratum component makes up 97 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash plains. The parent material consists of loess over loamy till over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 60 to 80 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 28 percent.

**Component:** Treaty (3%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

**Map Unit:** MmB2—Miamian silt loam, New Castle Till Plain, 2 to 6 percent slopes, eroded

**Component:** Miamian, eroded (90%)

The Miamian, eroded component makes up 90 percent of the map unit. Slopes are 2 to 6 percent. This component is on till plains on till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer, densic material, is 30 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 35 percent.

**Component:** Crosby (5%)

Generated brief soil descriptions are created for major soil components. The Crosby soil is a minor component.

**Component:** Treaty (5%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

**Map Unit:** Mx—Millgrove loam

**Component:** Millgrove (100%)

The Millgrove component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on stream terraces. The parent material consists of loamy outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 28 percent.

**Map Unit:** Sk—Sleeth silt loam, 0 to 2 percent slopes

**Component:** Sleeth (80%)

The Sleeth component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash terraces on till plains. The parent material consists of loess over loamy outwash over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 38 to 50 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 9 inches during January, February, March, April, May, June, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria.

**Component:** Sleeth, till substratum (15%)

Generated brief soil descriptions are created for major soil components. The Sleeth, till substratum soil is a minor component.

**Component:** Westland, drained (3%)

Generated brief soil descriptions are created for major soil components. The Westland, drained soil is a minor component.

**Component:** Eldean (1%)

Generated brief soil descriptions are created for major soil components. The Eldean soil is a minor component.

**Component:** Ockley (1%)

Generated brief soil descriptions are created for major soil components. The Ockley soil is a minor component.

**Map Unit:** We—Westland silt loam

**Component:** Westland (100%)

The Westland component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on stream terraces. The parent material consists of loamy outwash over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 30 to 55 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent.

## Rush County, Indiana

**Map Unit:** CrA—Crosby silt loam, 0 to 2 percent slopes

**Component:** Crosby (85%)

The Crosby component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on Wisconsin ground moraines, till plains. The parent material consists of silty material or loess over loamy till. Depth to a root restrictive layer, densic material, is 24 to 40 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 35 percent.

**Component:** Williamstown, eroded (8%)

Generated brief soil descriptions are created for major soil components. The Williamstown soil is a minor component.

**Component:** Treaty, drained (7%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

**Map Unit:** Cy—Cyclone silty clay loam, 0 to 2 percent slopes

**Component:** Cyclone (83%)

The Cyclone component makes up 83 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains on till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 2 inches during January, February, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria.

**Component:** Fincastle (5%)

Generated brief soil descriptions are created for major soil components. The Fincastle soil is a minor component.

**Component:** Xenia (5%)

Generated brief soil descriptions are created for major soil components. The Xenia soil is a minor component.

**Component:** Sugarvalley (3%)

Generated brief soil descriptions are created for major soil components. The Sugarvalley soil is a minor component.

**Component:** Starks (2%)

Generated brief soil descriptions are created for major soil components. The Starks soil is a minor component.

**Component:** Morningsun (2%)

Generated brief soil descriptions are created for major soil components. The Morningsun soil is a minor component.

**Map Unit:** EdB2—Eldean loam, 2 to 6 percent slopes, eroded

**Component:** Eldean, eroded (90%)

The Eldean, eroded component makes up 90 percent of the map unit. Slopes are 2 to 6 percent. This component is on outwash terraces on outwash plains. The parent material consists of loamy outwash over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 53 percent.

**Component:** Ockley (7%)

Generated brief soil descriptions are created for major soil components. The Ockley soil is a minor component.

**Component:** Westland, drained (3%)

Generated brief soil descriptions are created for major soil components. The Westland soil is a minor component.

**Map Unit:** MpB2—Miamian silt loam, New Castle Till Plain, 2 to 6 percent slopes, eroded

**Component:** Miamian, eroded (90%)

The Miamian, eroded component makes up 90 percent of the map unit. Slopes are 2 to 6 percent. This component is on till plains on till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer, densic material, is 30 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 35 percent.

**Component:** Crosby (5%)

Generated brief soil descriptions are created for major soil components. The Crosby soil is a minor component.

**Component:** Treaty (5%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

**Map Unit:** MrA—Miami silt loam, gravelly substratum, 0 to 2 percent slopes

**Component:** Miami, gravelly substratum (100%)

The Miami, gravelly substratum component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash plains. The parent material consists of loess over loamy till over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 30 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

**Map Unit:** MuC3—Miamian clay loam, 6 to 12 percent slopes, severely eroded

**Component:** Miamian, severely eroded (90%)

The Miamian, severely eroded component makes up 90 percent of the map unit. Slopes are 6 to 12 percent. This component is on till plains on till plains. The parent material consists of loamy till. Depth to a root restrictive layer, densic material, is 21 to 38 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 36 inches during January, February, March, April, May. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 28 percent.

**Component:** Brookston (5%)

Generated brief soil descriptions are created for major soil components. The Brookston soil is a minor component.

**Component:** Hennepin (5%)

Generated brief soil descriptions are created for major soil components. The Hennepin soil is a minor component.

**Map Unit:** OcA—Ockley silt loam, 0 to 2 percent slopes

**Component:** Ockley (85%)

The Ockley component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on stream terraces, outwash plains. The parent material consists of loess over loamy outwash over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 40 to 72 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria.

**Component:** Wawaka (5%)

Generated brief soil descriptions are created for major soil components. The Wawaka soil is a minor component.

**Component:** Fox (5%)

Generated brief soil descriptions are created for major soil components. The Fox soil is a minor component.

**Component:** Digby (3%)

Generated brief soil descriptions are created for major soil components. The Digby soil is a minor component.

**Component:** Haney (2%)

Generated brief soil descriptions are created for major soil components. The Haney soil is a minor component.

**Map Unit:** OcB2—Ockley silt loam, 2 to 6 percent slopes, eroded

**Component:** Ockley, eroded (85%)

The Ockley, eroded component makes up 85 percent of the map unit. Slopes are 2 to 6 percent. This component is on outwash plains, stream terraces. The parent material consists of loess over loamy outwash over sandy and gravelly outwash. Depth to a root restrictive layer, strongly contrasting textural stratification, is 40 to 72 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 2 percent.

**Component:** Ockley, eroded, till substratum (5%)

Generated brief soil descriptions are created for major soil components. The Ockley soil is a minor component.

**Component:** Sleeth (5%)

Generated brief soil descriptions are created for major soil components. The Sleeth soil is a minor component.

**Component:** Westland (5%)

Generated brief soil descriptions are created for major soil components. The Westland soil is a minor component.

**Map Unit:** So—Sloan silt loam, 0 to 2 percent slopes, frequently flooded

**Component:** Sloan (80%)

The Sloan component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on outwash plains. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent.

**Component:** Southwest, drained (5%)

Generated brief soil descriptions are created for major soil components. The Southwest, drained soil is a minor component.

**Component:** Shoals (5%)

Generated brief soil descriptions are created for major soil components. The Shoals soil is a minor component.

**Component:** Lash (5%)

Generated brief soil descriptions are created for major soil components. The Lash soil is a minor component.

**Component:** Bellcreek (5%)

Generated brief soil descriptions are created for major soil components. The Bellcreek soil is a minor component.

**Map Unit:** Tr—Treaty silty clay loam, 0 to 1 percent slopes

**Component:** Treaty, frequently ponded, drained (80%)

The Treaty, frequently ponded, drained component makes up 80 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on till plains. The parent material consists of silty material or loess over loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 13 percent.

**Component:** Crosby (5%)

Generated brief soil descriptions are created for major soil components. The Crosby soil is a minor component.

**Component:** Pella, frequently ponded, drained (5%)

Generated brief soil descriptions are created for major soil components. The Pella, frequently ponded, drained soil is a minor component.

**Component:** Rensselaer, frequently ponded, drained (5%)

Generated brief soil descriptions are created for major soil components. The Rensselaer, frequently ponded, drained soil is a minor component.

**Component:** Southwest, frequently ponded, drained (5%)

Generated brief soil descriptions are created for major soil components. The Southwest, frequently ponded, drained soil is a minor component.

**Map Unit:** Ws—Westland clay loam, 0 to 1 percent slopes

**Component:** Westland, drained (95%)

The Westland, drained component makes up 95 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on wide stream terraces on outwash plains. The parent material consists of loamy outwash over sandy and gravelly outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 2 inches during January, February, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria.

**Component:** Sleeth (4%)

Generated brief soil descriptions are created for major soil components. The Sleeth soil is a minor component.

**Component:** Ockley (1%)

Generated brief soil descriptions are created for major soil components. The Ockley soil is a minor component.

## Data Source Information

Soil Survey Area: Henry County, Indiana
Survey Area Data: Version 21, Sep 16, 2019

Soil Survey Area: Rush County, Indiana
Survey Area Data: Version 23, Sep 16, 2019

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# E. USFWS IPaC Report

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# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

In Reply Refer To:
Consultation Code: 03E12000-2019-SLI-1640
Event Code: 03E12000-2019-E-07209
Project Name: Bellflower Solar Site

August 29, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The attached species list identifies any federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-federal representative) must consult with the Service if they determine their project "may affect" listed species or critical habitat.

Under 50 CFR 402.12(e) (the regulations that implement Section 7 of the Endangered Species Act) the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally. You may verify the list by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation and completing the same process you used to receive the attached list. As an alternative, you may contact this Ecological Services Field Office for updates.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website at - http://www.fws.gov/midwest/endangered/section7/s7process/index.html. This website contains step-by-step instructions which will help you

determine if your project will have an adverse effect on listed species and will help lead you through the Section 7 process.

For all **wind energy projects** and **projects that include installing towers that use guy wires or are over 200 feet in height**, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

Although no longer protected under the Endangered Species Act, be aware that bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*) and Migratory Bird Treaty Act *(*16 U.S.C. 703 *et seq*), as are golden eagles. Projects affecting these species may require measures to avoid harming eagles or may require a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at http://www.fws.gov/midwest/midwestbird/EaglePermits/index.html to help you determine if you can avoid impacting eagles or if a permit may be necessary.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

# Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Indiana Ecological Services Field Office**
620 South Walker Street
Bloomington, IN 47403-2121
(812) 334-4261

# Project Summary

Consultation Code: 03E12000-2019-SLI-1640

Event Code: 03E12000-2019-E-07209

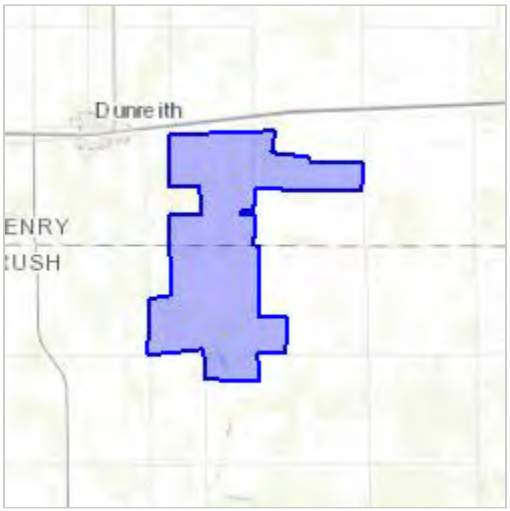
Project Name: Bellflower Solar Site

Project Type: POWER GENERATION

Project Description: Proposed Solar Facility Location

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.78571702817483N85.41660075909297W




Counties: Henry, IN | Rush, IN

# Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

| NAME | STATUS |
|---|---|
| Indiana Bat *Myotis sodalis*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/5949<br>Species survey guidelines:<br>https://ecos.fws.gov/ipac/guideline/survey/population/1/office/31440.pdf | Endangered |
| Northern Long-eared Bat *Myotis septentrionalis*<br>No critical habitat has been designated for this species.<br>This species only needs to be considered under the following conditions:<br>▪ Incidental take of the NLEB is not prohibited here. Federal agencies may consult using the 4(d) rule streamlined process. Transportation projects may consult using the programmatic process. See www.fws.gov/midwest/endangered/mammals/nleb/index.html<br>Species profile: https://ecos.fws.gov/ecp/species/9045 | Threatened |

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.