PIONEER DEVELOPMENT, LLC

Wetland Delineation Report for Project Cardinal

PROJECT CARDINAL
REVISION 0
MAY 23, 2025

Contents

Tables

List of Abbreviations

Abbreviation	Term/Phrase/Name
APT	Antecedent Precipitation Tool
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	Facultative plants
FACU	Facultative upland plants
FACW	Facultative wetland plants
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FSA	Farm Service Agency
FWD	Farmed Wetland Determination
I	Intermittent
LRR	Land Resource Region
NFHL	National Flood Hazard Layer
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWS	National Weather Service
OBL	Obligate wetland plant
OHWM	Ordinary High Water Mark
PEMf	Palustrine emergent farmed wetland
Project	Project Cardinal
Regional Supplement	Regional supplements to the 1987 Wetlands Delineation Manual
RPW	Relatively Permanent Water
S	Stream
SDA	Soil Data Access
SP	Sample Plot
SSURGO	Soil Survey Geographic
Survey Area	Approximately 1,041 acres of land (Figure 1, Appendix A)

Abbreviation	Term/Phrase/Name
UPL	Upland plants
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WETS Table	NRCS Climate Analysis for Wetlands Table
WOTUS	Waters of the United States

1.0 Introduction

Burns and McDonnell Engineering Company, Inc. (Burns & McDonnell) was retained by Pioneer Development LLC to conduct a wetland delineation for the proposed Project Cardinal (Project) in Bristol Township, Kendall County, Illinois (Figure 1, Appendix A). The Project would consist of construction, operation, and maintenance of a data center and cooling topologies, and a potential transmission line. The Survey Area, for the purpose of this analysis, includes approximately 1,041 acres of land identified for the proposed Project.

The purpose of this assessment was to identify wetlands and surface waters present within the Survey Area that may be considered "Waters of the United States" (WOTUS) and subject to regulation under the federal Clean Water Act (CWA) by the U.S. Army Corps of Engineers (USACE). The USACE and the U.S. Environmental Protection Agency (EPA) jointly define wetland as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (42 Fed. Reg. 37128-29). WOTUS are defined using the definition in 88 FR 61964.

Burns & McDonnell conducted a wetland delineation on April 24, 2025, to identify the location and extent of wetlands present within the Survey Area. This report documents the methods and results of the desktop and field investigations conducted to identify wetlands and surface waters for the Project.

2.0 Methods

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

2.1 Existing Data Review

Burns and McDonnell reviewed the available background information for the Survey Area prior to conducting the site visits. The information reviewed included the following:

- U.S. Geological Survey (USGS) 7.5-minute topographic maps (Yorkville, IL quadrangle),
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM 2017) from the National Flood Hazard Layer (NFHL)
- USGS National Hydrography Dataset (NHD)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map
- Kendall County Wetland Map
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey for Kendall County

Maps generated from available data are included as Figures 1-4 in Appendix A

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

2.2 Wetland Delineation

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

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

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

This wetland delineation used the hydrophytic vegetation, hydric soil and wetland hydrology indicators as outlined in the applicable Regional Supplement for each sample point. A general overview of hydrophytic vegetation, hydric soil, and wetland hydrology indicators are provided below. Detailed information for each

indicator can be found in the applicable Regional Supplement. In addition, methodologies for determining wetland quality (where applicable), surface water boundaries, and farmed wetland determinations are provided below.

2.2.1 Hydrophytic Vegetation

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

The indicator status and percent absolute cover for plants within plots for all vegetation strata are recorded. The indicator status for plant species is based on an estimated probability of occurring in wetlands. This rating system, published by the USACE in 2020 under the title "National Wetland Plant List, version 3.5" (USACE 2020), consists of obligate wetland plants (OBL), facultative-wet plants (FACW), facultative plants (FAC), facultative upland plants (FACU) and upland plants (UPL). Obligate plant species generally grow in water. Facultative plant species can exist in saturated or dry soil conditions, and upland plants typically require dry soil to exist.

2.2.2 Hydric Soil

A description of the soil profile is used to evaluate the presence of hydric soil. The USDA recognizes 28 Land Resource Regions (LRRs) based on soil, climate, and land use. Hydric soil indicators for LRRs presented in the Regional Supplements are a subset of the National Technical Committee for Hydric Soils Field indicators of Hydric Soils in the United States and are regularly modified. The most recent version of Field indicators of Hydric Soils is Version 9.0 (USDA NRCS 2025a), which was used for this delineation.

2.2.3 Wetland Hydrology

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

2.2.4 Surface Water Assessment

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

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

On January 8, 2025, the USACE and EPA issued the National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams (National OHWM Manual; 2025). The National OHWM Manual is a non-

mandatory technical resource which can be used in appropriate situations to assist with identifying and delineating the OHWM.

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

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

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

2.2.5 Floristic Quality Assessment

The U.S. Army Corps of Engineers (USACE) Chicago District requires a Floristic Quality Assessment (FQA) for all wetlands. The Chicago Region FQA Calculator developed by the USACE Chicago District using the procedures outlined in the Swink and Wilhelm (1994) publication, Plants of the Chicago Region, is utilized to calculate the Native Floristic Quality Inventory (FQI) and Native Mean C-value. A Native Mean C-value is calculated for the wetlands to gauge the relative amount of disturbance that has occurred at the site. C-values range from 0 to 10; non-native or weedy species are assigned a value of zero and the highest quality native plants are assigned a value of ten. A low Native Mean C-value indicates that the area has likely been highly disturbed and is typically composed of invasive or weedy species.

Native FQI values range from 0 to 60 and describe the quality of vegetative habitat. A native FQI value under 20 signifies a disturbed area with poor vegetative quality and diversity. a native FQI value between 20 and 34 indicates moderate vegetative quality and diversity; a native FQI value between 35 and 49 is considered to be floristically important; and a native FQI value above 50 represents an area of the highest conservation priority.

2.2.6 High Quality Aquatic Resource

The USACE Chicago District defines a High Quality Aquatic Resource (HQAR) as “aquatic areas considered to be regionally critical due to their uniqueness, scarcity, and/or value, and other wetlands considered to perform functions important to the public interest, as defined in 33 CFR Part 320.4(b)(2).” These resources include Advanced Identification sites, bogs, ephemeral wetlands, dune and swale complexes, fens, forested wetlands, sedge meadows, seeps, streams rated A or B for diversity or integrity, or mapped as biologically significant in the Illinois Biological Stream Characterization study, wet prairies, wetlands supporting Federal, or Illinois endangered or threatened species, and wetlands with a Native FQI of 20 or greater or Native Mean C-value of 3.5 or greater. The USACE may consider these areas unsuitable for dredge or fill activities. The Nationwide Permit Program does not include a definition of HQARs, however, the USACE Chicago District uses the above definition when evaluating buffers and mitigation ratios for permanent impacts.

2.3 Farmed Wetland Determination

Where actively farmed areas are present within the Survey Area, the Regional Supplement details methods for identification of wetland hydrology indictors, which includes a Farmed Wetland Determination (FWD). An area that meets the standards of a farmed wetland is not by itself, a jurisdictional wetland. Rather, it is a method that is used in the overall wetland delineation process. A FWD is conducted using methodologies outlined in the National Food Security Act Manual (2010). Climate data, from the closest National Weather Service (NWS) precipitation recording station, is used to determine relative rainfall volume and subsequently define normal and above normal precipitation years. This rainfall and precipitation information is used to create an NRCS Climate Analysis for Wetlands Table (WETS table) which classifies each year as a wet, normal, or dry year. A “Wet Year” indicator slide is selected and serves as a base map to evaluate potential farmed wetland signatures. Then a minimum of five “Normal Years” (preferably 10 years) of Farm Service Agency (FSA) aerial slides are selected and reviewed to determine if the signatures identified from the base map are present. Field investigations are not required for farmed wetland signatures that are not present on three or more “Normal Year” slides out of five, or two of five “Normal Year” slides if the signature is also depicted as a wetland on the NWI Map.

3.0 Results

The following sections describe the results of the existing data review and completed wetland delineation.

3.1 Existing Data Review

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

3.1.1 USGS 7.5-minute Topographic Maps

The USGS topographic map indicates the Survey Area crosses predominantly flat terrain (< 5% slopes) of agricultural and undeveloped land. The Survey Area generally drains to the southeast, toward Rob Roy Creek (Figure 2, Appendix A).

3.1.2 FEMA FIRM

The 2017 FIRM indicates there is no FEMA floodplain associated with the unnamed tributary within the Survey Area (Figure 2, Appendix A).

3.1.3 USFWS NWI

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

A desktop assessment of NWI data indicates one riverine wetland is located within the Survey Area (Figure 3, Appendix A).

3.1.4 USGS NHD

The NHD represents the water drainage network of the United States with features such as rivers, streams, canals, lakes, ponds, coastline, dams, and stream gages. NHD is updated and maintained through partnerships with states and other collaborative bodies. The NHD data indicates Rob Roy Creek and several unnamed tributaries are present within the Survey Area (Figure 3, Appendix A).

3.1.5 USDA NRCS SSURGO

The NRCS Web Soil Survey (USDA NRCS 2025b) is generated from the USDA-NRCS certified data. The NRCS Soil Data Access (SDA) Hydric Soils List (USDA NRCS 2025c) contains a compilation of all map units with either a major or minor component that is at least in part hydric. As the list includes both major and minor

percentages for map units, in some cases most of the map unit may not be hydric. The list is useful in identifying map units that may contain hydric soils.

The NRCS Soils Survey Geographic Database (SSURGO) digital data indicates that 23 soil map units are located within the Survey Area (Figure 4, Appendix A). Of these, five soil units are included on local and national hydric soil lists. These include:

- Drummer silty clay loam, 0 to 2 percent slopes
- Knight silt loam, 0 to 2 percent slopes
- Peotone silty clay loam, 0 to 2 percent slopes
- Elpaso silty clay loam, 0 to 2 percent slopes
- Thorp silt loam, 0 to 2

3.1.6 Farmed Wetland Determination

Climate data from the USEPA Antecedent Precipitation Tool (APT) was used to determine relative rainfall volume and subsequently define normal, dry, and above normal precipitation years. Specific dates were available for Google Earth aerial imagery and the APT was used to define normal, dry, and above normal precipitation for these dates. A total of one “Wet Year” (2013), four “Normal Years” (2015, 2017, 2018, and 2024), and one “Dry Year” (2023) were utilized. Many areas were not sampled in the field due to the absence of one or more wetland indicators. A formal FWD is provided in Appendix D.

3.2 Site Investigation Results

One stream and two wetlands were delineated within the Survey Area. The Antecedent Precipitation Tool (APT) results indicated the Survey Area was experiencing normal conditions at the time of the survey (Appendix B). The wetlands are summarized in Table 1 below and are mapped on Figure 5 in Appendix A. The singular surface water is summarized in Table 3 below and mapped on Figure 5 in Appendix A. Wetland Determination Data Forms from the applicable Regional Supplement were completed for sample points taken in areas determined not to be wetland and are included in Appendix B. As neither wetland featured any vegetation, the FQA was not calculated. Natural color photographs of the sample plots and surface water are included in Appendix C. Locations of sample plots, and stream banks surveyed using a sub-meter accurate Global Positioning System unit.

3.2.1 Wetlands

Two wetlands were delineated within the Survey Area. Refer to Table 1 below for the details:

Table 1: Summary of Wetlands within the Survey Area

Wetland Number[a]	Wetland Type[b]	Dominant Vegetation[c]	Hydric Soil Indicator(s)[d]	Wetland Hydrology Indicator(s)[e]	Area of Wetland Delineated in Survey Area (acre)	WOTUS (Y/N)
W-1	PEMf	--	F6	A3, C9, D2	0.12	N
W-2	PEMf	--	F6	C9, D2	0.08	N

(a) Assigned by Burns & McDonnell staff during the Site Investigation; W = Wetland.
(b) Symbols for wetland type: PEMf = palustrine emergent farmed wetland.
(c) No vegetation was present, both wetlands are located within agricultural fields. Vegetation is assumed to be hydrophytic due to prevalence of other wetland indicators.
(d) Indicator code for hydric soil: F6 = Redox Dark Surface.
(e) Indicator code for wetland hydrology: A3 = Saturation, C9 = Saturation Visible on Aerial Imagery, D2 = Geomorphic Position.

3.2.2 Areas Determined Not to Meet Wetland Criteria

Areas identified during the desktop review due to changes in vegetative cover or occurrence within the NWI dataset were investigated in the field and were determined to not meet wetland criteria. These areas lacked one or more wetland criteria and were not considered wetlands at the time of the site investigation. Table 1 provides a summary of the wetland indicators for sample plots recorded in these areas.

Table 2: Summary of Sample Plots Not Determined to Meet Wetland Criteria within the Survey Area

Sample Plot (SP)	Dominant Vegetation[a]	Hydric Soil Indicator(s)[b]	Wetland Hydrology Indicator(s)[c]
SP-1	Tall fescue	F6	D2, C9
SP-2	Tall fescue	--	C9
SP-5	--	--	A3

(a) Tall fescue (*Lolium arundinaceum*).
(b) Indicator code for hydric soil: F6 = Redox Dark Surface.
(c) Indicator code for wetland hydrology: D2 = Geomorphic Position, C9 – Saturation Visible on Aerial Imagery, A3 = Saturation.

Sample Point 1 (SP-1)

SP-1 is located within a concave depression within an agricultural field and was investigated due to the landform. No indicators of hydrophytic vegetation were present at the time of the site visit. Only one secondary hydrology indicator, Geomorphic Position (D2) and hydric soil were identified at this location. Due to the lack of hydrophytic vegetation and additional hydrology indicators, this area was determined not to meet wetland conditions.

Sample Point 5 (SP-5)

SP-5 is located on a flat, linear area within an agricultural field and was investigated due to Saturation. No indicators of hydrophytic vegetation or hydric soil were present at the time of the site visit. Saturation was present only in the first 3-4 inches of soil and was likely due to recent rain. Due to the lack of hydrophytic vegetation and hydric soil indicators, this area was determined not to meet wetland conditions.

3.2.3 Streams

A total of one surface water was delineated within the Survey Area. Refer to Table 3 below for details of the stream.

Table 3: Summary of Streams within the Survey Area

Stream Number[a]	Stream Type[b]	WOTUS[c]	Stream Name[d]	OHWM Width (feet)	OHWM Bank Height (feet)	Depth at OHWM (feet)	Length of Delineated Stream
S-1	I/RPW	Y	Rob Roy Creek	8	4	4	10, 602
Total:							**10, 602**

(a) Assigned by Burns & McDonnell staff during the site investigation; S = stream.
(b) I = Intermittent; RPW = Relatively Permanent Water
(c) Jurisdiction is based on professional judgement using the September 8, 2023, revised definition of WOTUS (88 FR 61964) which conforms to the Sackett c. Environmental Protection Agency supreme court decision dated May 25, 2023.
(d) Stream name follows USGS topographic map, NHD, or state/local data source.

4.0 Summary

Burns & McDonnell conducted a wetland delineation of the Survey Area to identify wetlands and other waterbodies on April 24, 2025. One intermittent stream and two wetlands were delineated within the Survey Area.

The delineated stream within the Survey Area is anticipated to be WOTUS and under the jurisdiction of the USACE. This jurisdictional recommendation is based on professional judgment using the current guidance at the time of this report. Jurisdictional surface waters and wetlands are defined by the "Revised Definition of WOTUS" (88 FR 61964) which conforms to the Sackett v. Environmental Protection Agency supreme court decision dated May 25, 2023.

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Appendix A – Figures

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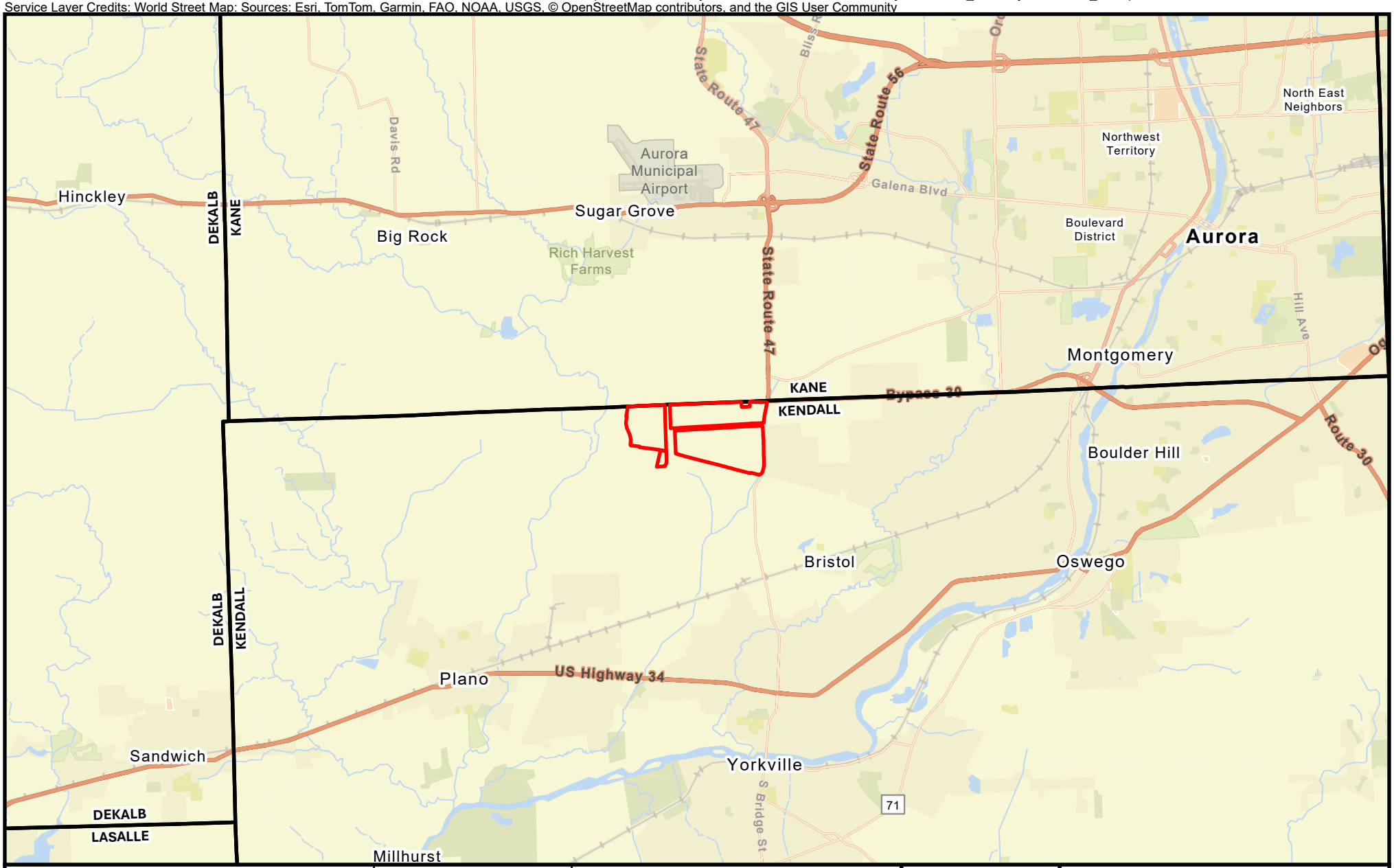

Project Area

NORTH

2 1 0 2

Scale in Miles

BURNS McDONNELL

Figure 1
Overview Map
Project Cardinal
Pioneer Development, LLC
Kendall County, Illinois

Source: Burns & McDonnell, Cirrus Farms, ESRI

Issued: 5/22/2025

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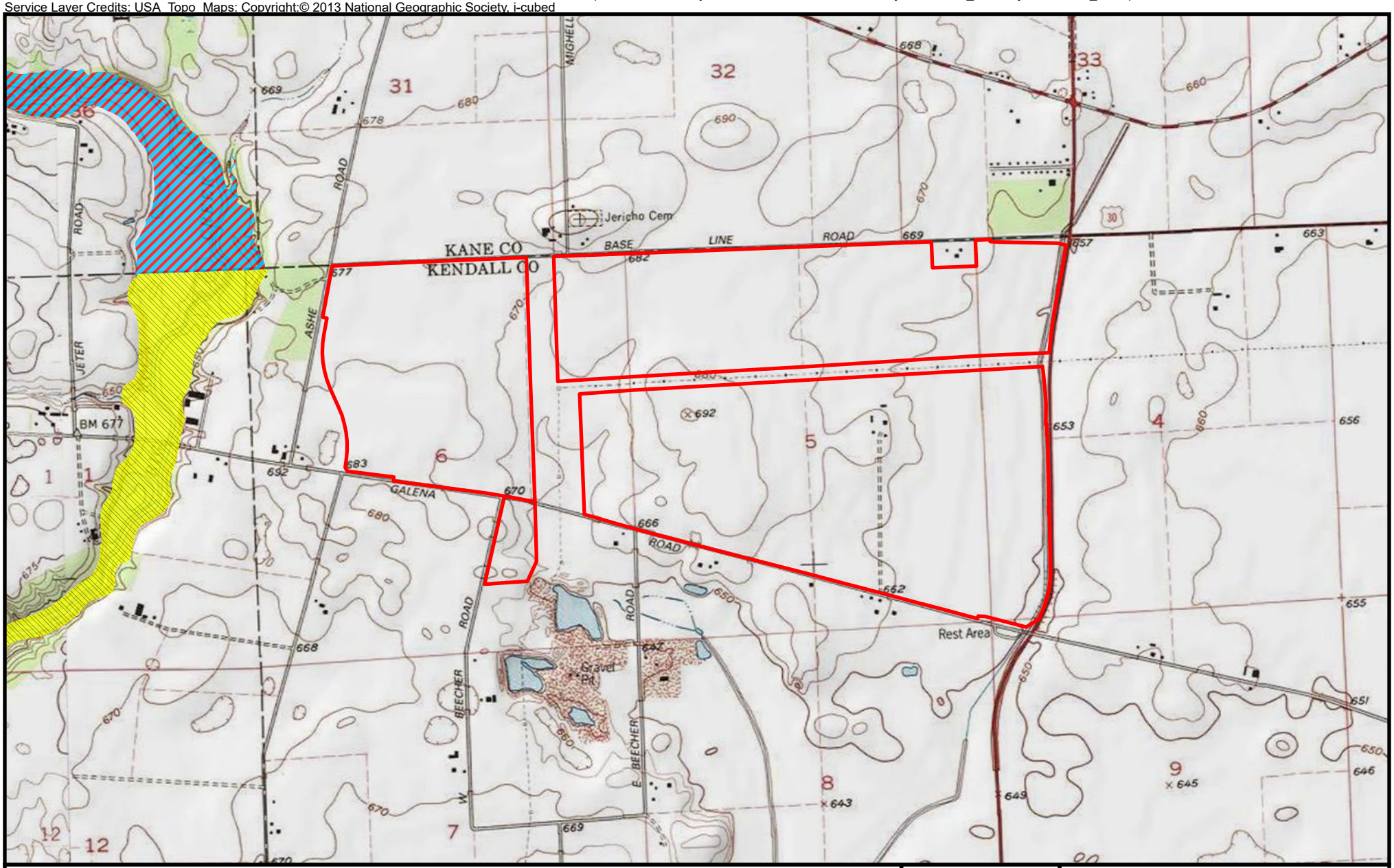

Project Area

Flood Zone

Zone A (100-Year Floodplain)

Zone AE (100-Year Floodplain)

NORTH

2,000 1,000 0 2,000

Scale in Feet

BURNS McDONNELL

Figure 2
Topographic & FEMA Map
Project Cardinal
Pioneer Development, LLC
Kendall County, Illinois

Source: Burns & McDonnell, Cirrus Farms, ESRI, FEMA, USGS

Issued: 5/22/2025

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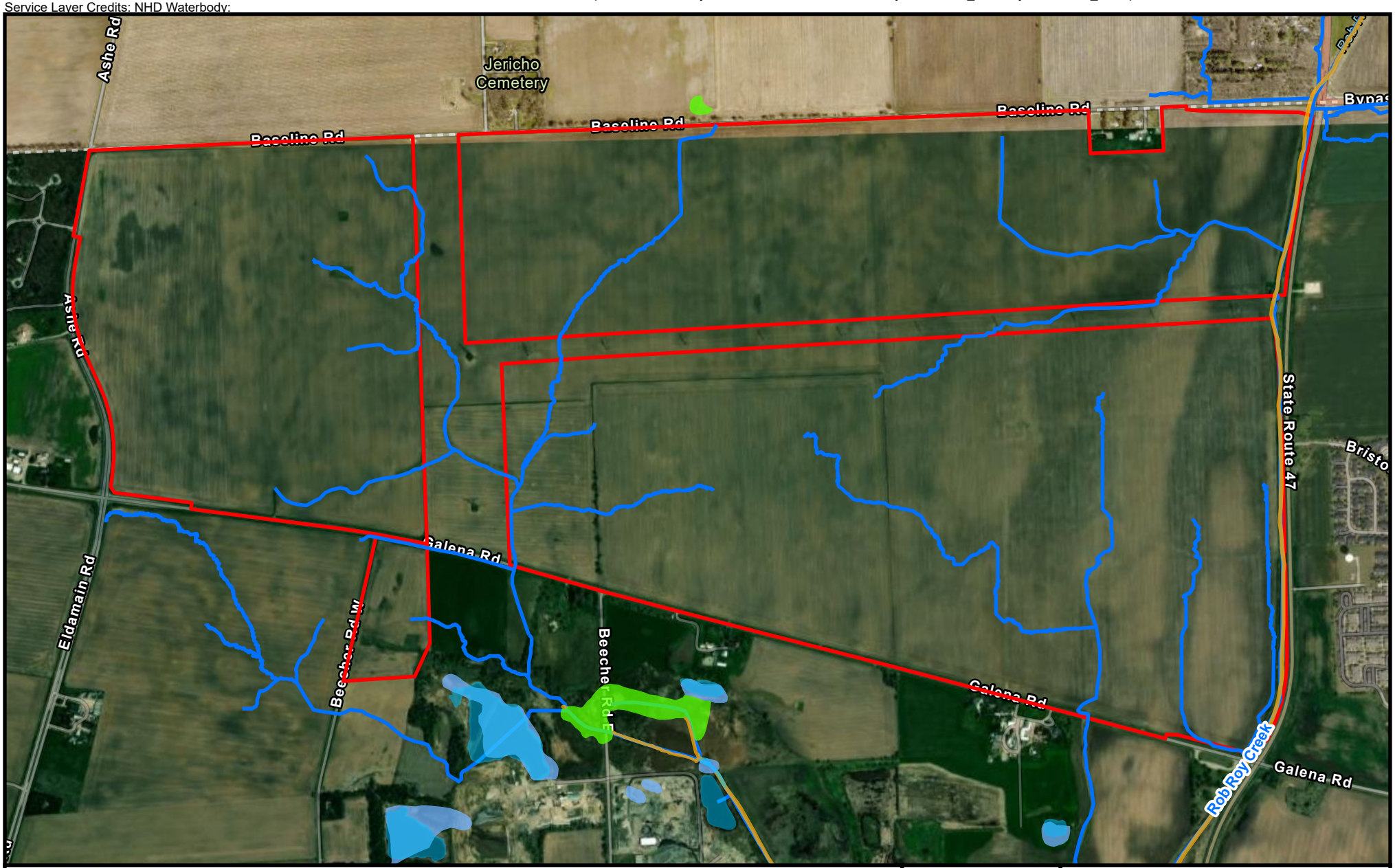

BURNS McDONNELL

Figure 3
NWI & NHD Data Map
Project Cardinal
Pioneer Development, LLC
Kendall County, Illinois

Source: Burns & McDonnell, Cirrus Farms, ESRI, USGS NHD, USFWS NWI

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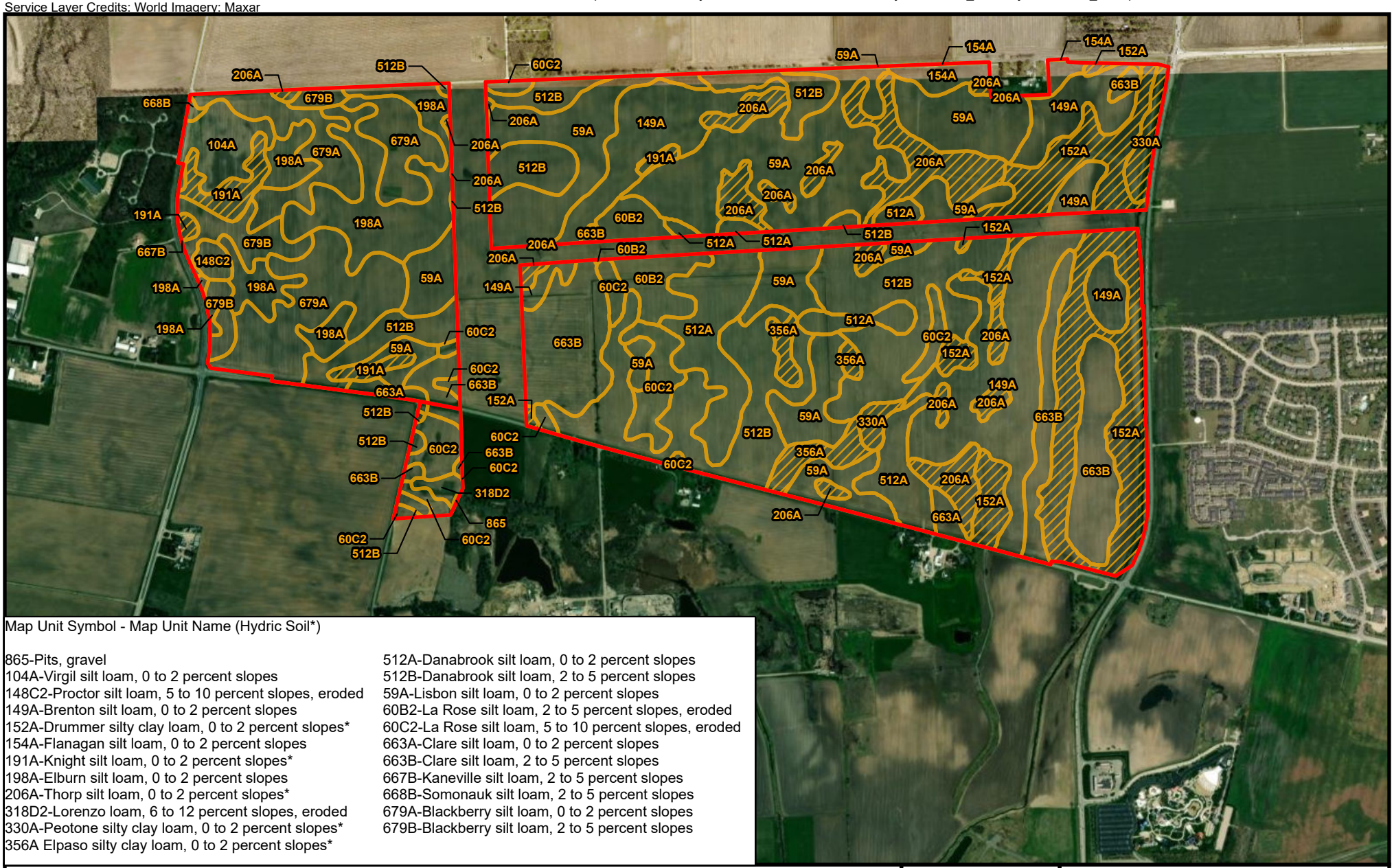


Map Unit Symbol - Map Unit Name (Hydric Soil*)

865-Pits, gravel
104A-Virgil silt loam, 0 to 2 percent slopes
148C2-Proctor silt loam, 5 to 10 percent slopes, eroded
149A-Brenton silt loam, 0 to 2 percent slopes
152A-Drummer silty clay loam, 0 to 2 percent slopes*
154A-Flanagan silt loam, 0 to 2 percent slopes
191A-Knight silt loam, 0 to 2 percent slopes*
198A-Elburn silt loam, 0 to 2 percent slopes
206A-Thorp silt loam, 0 to 2 percent slopes*
318D2-Lorenzo loam, 6 to 12 percent slopes, eroded
330A-Peotone silty clay loam, 0 to 2 percent slopes*
356A Elpaso silty clay loam, 0 to 2 percent slopes*
512A-Danabrook silt loam, 0 to 2 percent slopes
512B-Danabrook silt loam, 2 to 5 percent slopes
59A-Lisbon silt loam, 0 to 2 percent slopes
60B2-La Rose silt loam, 2 to 5 percent slopes, eroded
60C2-La Rose silt loam, 5 to 10 percent slopes, eroded
663A-Clare silt loam, 0 to 2 percent slopes
663B-Clare silt loam, 2 to 5 percent slopes
667B-Kaneville silt loam, 2 to 5 percent slopes
668B-Somonauk silt loam, 2 to 5 percent slopes
679A-Blackberry silt loam, 0 to 2 percent slopes
679B-Blackberry silt loam, 2 to 5 percent slopes

Project Area

SSURGO Soil Map Unit

Non-Hydric Soil

Hydric Soil

NORTH

1,500 750 0 1,500

Scale in Feet

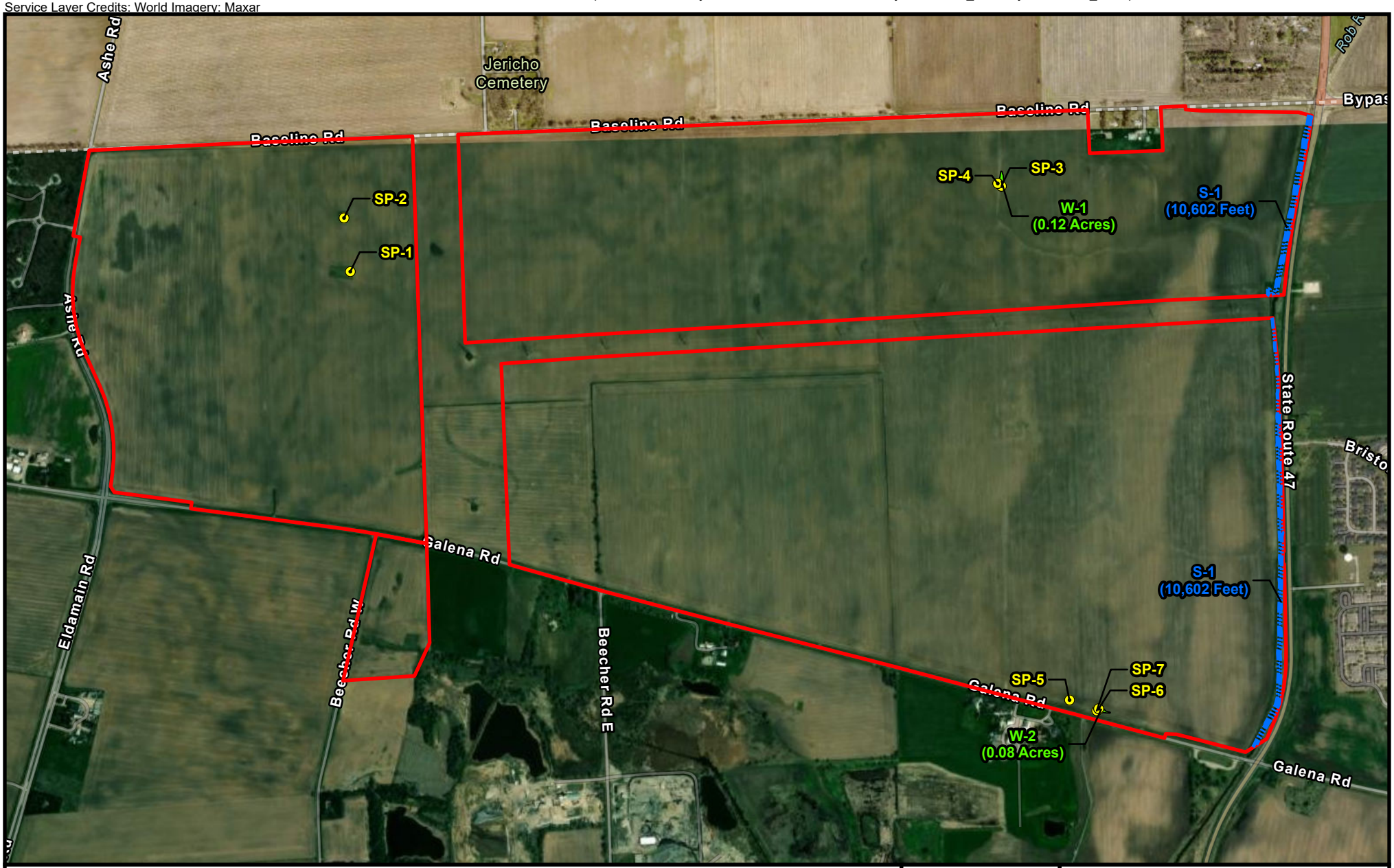
BURNS McDONNELL

Figure 4
Soils Map
Project Cardinal
Pioneer Development, LLC
Kendall County, Illinois

Source: Burns & McDonnell, Cirrus Farms, ESRI, NRCS SSURGO

Issued: 5/22/2025

Path: C:\Users\cmwestmoreland\Burns & McDonnell\Texas ENS - Texas GIS\Fort Worth\Pioneer Development\176350-Project Cardinal\DataFiles\ArcPro\Project Cardinal_CW\Project Cardinal_CW.aprx cmwestmoreland 5/22/2025
Service Layer Credits: World Imagery: Maxar



Project Area
Sample Plot (SP)

Stream (S)
Intermittent

Wetland (W)
PEM

NORTH

1,200 600 0 1,200
Scale in Feet

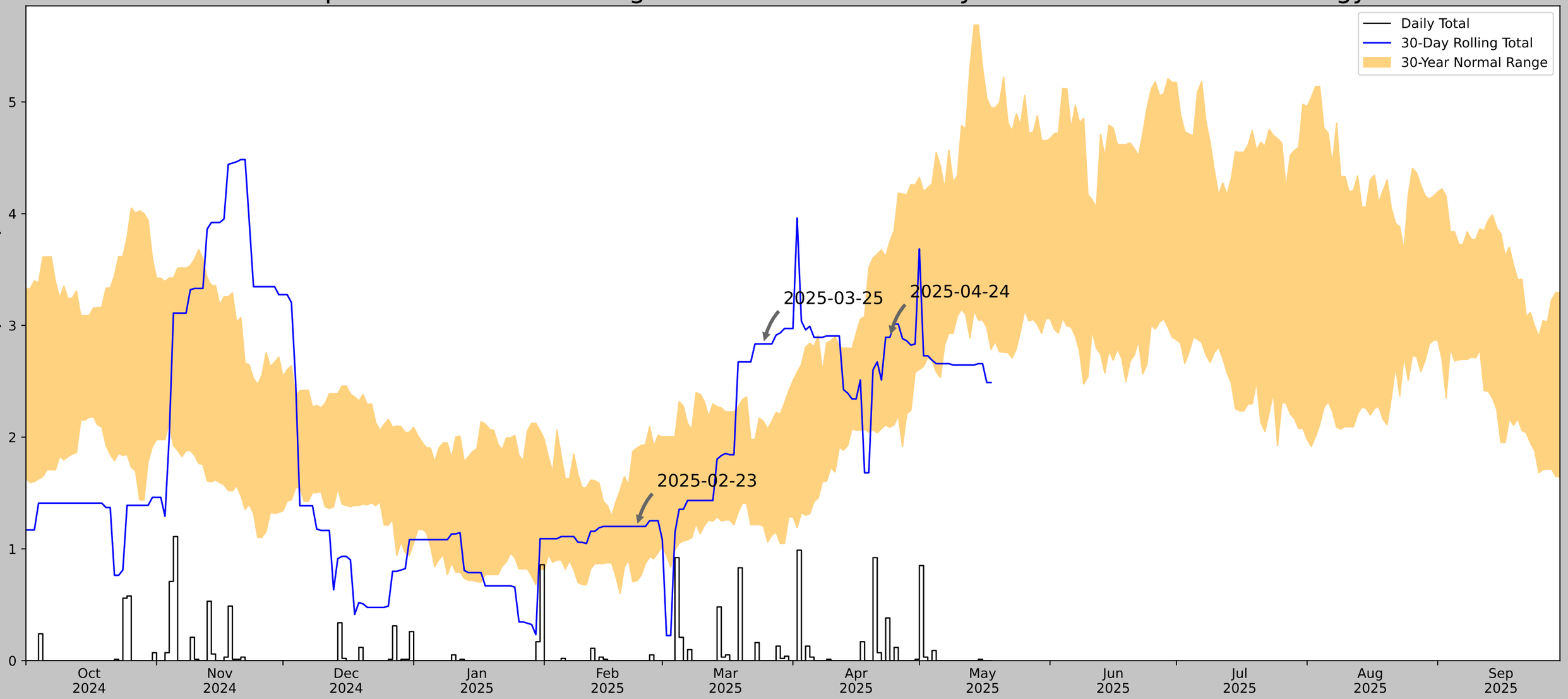
BURNS McDONNELL

Figure 5
Wetland Delineation Map
Project Cardinal
Pioneer Development, LLC
Kendall County, Illinois

Source: Burns & McDonnell, Cirrus Farms, ESRI

Issued: 5/22/2025

Appendix B – Wetland Determination Data Forms & Antecedent Precipitation Tool (APT)



Coordinates	41.717319, -88.464525
Observation Date	2025-04-24
Elevation (ft)	675.139
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-04-24	2.088189	3.752362	2.893701	Normal	2	3	6
2025-03-25	1.204724	2.141732	2.834646	Wet	3	2	6
2025-02-23	0.715748	1.90315	1.200787	Normal	2	1	2
Result							Normal Conditions - 14

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHICAGO AURORA MUNI AP	41.7714, -88.4814	701.116	3.837	25.977	1.826	9432	90
SUGAR GROVE 0.7 NE	41.7762, -88.4478	714.895	1.763	13.779	0.818	29	0
SUGAR GROVE 1.4 ENE	41.7787, -88.4343	688.976	2.479	12.14	1.146	2	0
AURORA 3.1 WSW	41.7565, -88.3518	704.068	6.758	2.952	3.061	1	0
AURORA WATER	41.7803, -88.3092	674.869	8.894	26.247	4.236	1885	0
WHEATON 3 SE	41.8128, -88.0728	680.118	21.242	20.998	10.005	4	0

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal | City/County: Kendall County | Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC | State: Illinois | Sampling Point: SP-1
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) | Section, Township, Range: S06 T37N R7E
Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave
Slope (%): 1 | Lat: 41.71797959 | Long: -88.47630689 | Datum: WGS 84
Soil Map Unit Name: 679A - Blackberry silt loam, 0 to 2 percent slopes | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
SP-1 is located within an area that was determined not to be wetland. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Lolium arundinaceum	40	✔	UPL
2. Taraxacum officinale	10		FACU
3. Daucus carota	5		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	55	=Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	45	x 5 =	225
Column Totals:	55 (A)		265 (B)

Prevalence Index = B/A = 4.81

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 ✔

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

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 4	10YR 2/2	100					Silty Clay Loam	
4 - 8	10YR 2/2	80					Silty Clay Loam	
4 - 8	10YR 5/3	20					Silty Clay Loam	
8 - 18	10YR 2/2	20	10YR 5/6	5	C	M	Silty Clay Loam	
8 - 18	10YR 4/2	75					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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: Gravel

Depth (inches): 18

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

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-1

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	55	=Total Cover	
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal | City/County: Kendall County | Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC | State: Illinois | Sampling Point: SP-2
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) | Section, Township, Range: S06 T37N R7E
Landform (hillside, terrace, etc.): Flat | Local relief (concave, convex, none): Linear
Slope (%): 0 | Lat: 41.71937927 | Long: -88.47635621 | Datum: WGS 84
Soil Map Unit Name: 679A - Blackberry silt loam, 0 to 2 percent slopes | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
SP-2 is located within an area that was determined not to be wetland. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Lolium arundinaceum	50	✔	UPL
2. Daucus carota	10		UPL
3. Solanum carolinense	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	65 =Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	60	x 5 =	300
Column Totals:	65 (A)		320 (B)

Prevalence Index = B/A = 4.92

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

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

Hydrophytic Vegetation Present? Yes ____ No ✔

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

SOIL

Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 20	10YR 3/2	100					Silty Clay Loam	
-								
-								
-								
-								
-								

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

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

Hydric 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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: _____

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

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

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

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-2

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	65	=Total Cover	
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal City/County: Kendall County Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC State: Illinois Sampling Point: SP-3
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) Section, Township, Range: S05 T37N R7E
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1 Lat: 41.7198719 Long: -88.45449415 Datum: WGS 84
Soil Map Unit Name: 59A - Lisbon silt loam, 0 to 2 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✔ No ____
Hydric Soil Present? Yes ✔ No ____
Wetland Hydrology Present? Yes ✔ No ____

Is the Sampled Area within a Wetland? **Yes** ✔ **No** ____

Remarks:
SP-3 is located within palustrine emergent farmed (PEMf) wetland (W)-1. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	=Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation present, sample plot is within an agricultural field. Vegetation is assumed to be hydrophytic due to prevalence of other wetland indicators.

SOIL

Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 2/2	100					Silty Clay Loam	
8 - 20	10YR 2/2	60	10YR 5/6	10	C	M	Silty Clay Loam	
8 - 20	10YR 4/2	30					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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: _____

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)
- ___ 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 ✔	Depth (inches): ___
Water Table Present?	Yes ✔	No ___	Depth (inches): 18
Saturation Present? (includes capillary fringe)	Yes ✔	No ___	Depth (inches): 10

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

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

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-3

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	=Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

No vegetation present, sample plot is within an agricultural field. Vegetation is assumed to be hydrophytic due to prevalence of other wetland indicators.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal City/County: Kendall County Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC State: Illinois Sampling Point: SP-4
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) Section, Township, Range: S05 T37N R7E
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1 Lat: 41.71997513 Long: -88.45449317 Datum: WGS 84
Soil Map Unit Name: 59A - Lisbon silt loam, 0 to 2 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No ✔
Hydric Soil Present? Yes ____ No ✔
Wetland Hydrology Present? Yes ____ No ✔

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✔

Remarks:
SP-4 is located within an upland adjacent to W-1. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	=Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation present, sample plot is within an agricultural field.

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 10	10YR 2/1	100					Silty Clay Loam	
10 - 20	10YR 4/3	60					Silty Clay Loam	
10 - 20	10YR 2/1	40					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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: _____

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

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

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

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-4

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	=Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

No vegetation present, sample plot is within an agricultural field.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal City/County: Kendall County Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC State: Illinois Sampling Point: SP-5
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) Section, Township, Range: S05 T37N R7E
Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): Linear
Slope (%): 0 Lat: 41.70695962 Long: -88.45256564 Datum: WGS 84
Soil Map Unit Name: 152A - Drummer silty clay loam, 0 to 2 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No ✔
Hydric Soil Present? Yes ____ No ✔
Wetland Hydrology Present? Yes ✔ No ____

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✔

Remarks:
SP-5 is located within an area that was determined not to be wetland. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	=Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation present, sample plot is within an agricultural field.

SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 2/1	100					Silty Clay Loam	
16 - 20	10YR 2/1	95	10YR 5/6	5	C	M	Silty Clay Loam	
20 - 26	10YR 2/1	85	10YR 5/6	15	C	M	Silty Clay Loam	
-								
-								
-								

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

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

Hydric 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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: Compacted clay

Depth (inches): 26

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)
- ___ 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 ✔	Depth (inches): ___
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ✔	No ___	Depth (inches): 1-4

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Saturation only present in first four inches.

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-5

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	=Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

No vegetation present, sample plot is within an agricultural field.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal City/County: Kendall County Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC State: Illinois Sampling Point: SP-6
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) Section, Township, Range: S05 T37N R7E
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1 Lat: 41.70670667 Long: -88.45158353 Datum: WGS 84
Soil Map Unit Name: 149A - Brenton silt loam, 0 to 2 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✔ No ____
Hydric Soil Present? Yes ✔ No ____
Wetland Hydrology Present? Yes ✔ No ____

Is the Sampled Area within a Wetland? **Yes** ✔ **No** ____

Remarks:
SP-6 is located within PEMf W-2. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	=Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation present, sample plot is located within an agricultural field. Vegetation is assumed to be hydrophytic due to prevalence of other wetland indicators.

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 6	10YR 2/1	100					Silty Clay Loam	
6 - 20	10YR 2/1	60	10YR 5/6	15	C	M	Silty Clay Loam	
6 - 20			10YR 5/2	25	D	M	Silty Clay Loam	
-								
-								
-								

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

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

Hydric 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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: _____

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

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

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

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-6

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	=Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

No vegetation present, sample plot is located within an agricultural field. Vegetation is assumed to be hydrophytic due to prevalence of other wetland indicators.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Project Cardinal City/County: Kendall County Sampling Date: 2025-04-24
Applicant/Owner: Pioneer Development, LLC State: Illinois Sampling Point: SP-7
Investigator(s): Burns & McDonnell (C. Most, L. Belleville) Section, Township, Range: S05 T37N R7E
Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): Linear
Slope (%): 0 Lat: 41.70668964 Long: -88.45166761 Datum: WGS 84
Soil Map Unit Name: 152A - Drummer silty clay loam, 0 to 2 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No ✔
Hydric Soil Present? Yes ____ No ✔
Wetland Hydrology Present? Yes ____ No ✔

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✔

Remarks:
SP-7 is located within an upland adjacent to W-2. The USACE Antecedent Precipitation Tool indicated the Survey Area was experiencing normal conditions at the time of field surveys.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	=Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0

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

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation present, sample plot is within an agricultural field.

SOIL

Sampling Point: SP-7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 2/1	100						
18 - 20	10YR 2/1	90	10YR 4/2	8	D	M	Silty Clay Loam	
18 - 20			10YR 5/4	2	C	M	Silty Clay Loam	
-								
-								
-								

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

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

Hydric 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)
- ___ Iron Monosulfide (A18)
- ___ 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]:

- ___ 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: _____

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

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

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

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-7

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	=Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

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

Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

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

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

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

No vegetation present, sample plot is within an agricultural field.

Appendix C – Photograph Log

Photograph 1: View of Sample Plot (SP)-3 located within Palustrine Emergent, farmed (PEMf) Wetland (W)-1, facing south.

Photograph 2: View of SP-4 located within an upland area adjacent to W-1, facing east.

Photograph 3: View of SP-6 located within PEMf W-2, facing north.

Photograph 4: View of SP-7 located within an upland area adjacent to W-2, facing north.

Photograph 5: Representative view of Stream (S)-1 within the Survey Area, facing south towards Galena Road.

Photograph 6: Representative view of a drainage feature to S-1 within the Survey Area, facing west.

Photograph 7: Representative view of culvert that facilitates water movement to S-1 within the Survey Area, facing east.

Appendix D – Farmed Wetland Determination

FWD Summary

FWD Signature	WET	NORMAL/DRY					Number of Signatures Present on Normal/Dry Year Images	Mapped NWI (Y/N)	Hydric Soil	Meets FWD Requirements (Y/N)	Signature Type	Comments
Year	**2013**	**2015**	**2017**	**2018**	**2023**	**2024**						
Aerial Source	**Google Earth**	**Google Earth**	**Google Earth**	**Google Earth**	**Google Earth**	**Google Earth**						
Aerial Date	**5/23/2013**	**9/20/2015**	**9/9/2017**	**7/11/2018**	**6/19/2023**	**5/3/2024**						
APT Tool[1]	**WET**	**NORMAL**	**NORMAL**	**NORMAL**	**DRY**	**NORMAL**						
1	X	X	X	X	X	X	5	N	N	Y	SP-1	Upland vegetation
2	X	X	X	X	X	X	5	N	N	Y	SP-2	Upland vegetation, no hydric soil
3		X	X				2	N	Partial	Y	NA	Absence of Geomorphic Position
4	X	X	X	X	X	X	5	N	Partial	Y	NA	Elevated property line, upland vegetation
5	X	X	X	X	X	X	5	N	N	Y	NA	Absence of Geomorphic Position, upland vegetation
6	X	X	X	X	X		4	N	N	Y	NA	Absence of Geomorphic Position
7	X	X	X	X	X		4	N	N	Y	NA	Absence of Geomorphic Position
8	X	X	X	X	X	X	5	N	N	Y	NA	Absence of Geomorphic Position, upland vegetation
9	X						0	N	Partial	N	NA	Absence of Geomorphic Position
10	X	X	X		X	X	4	N	Partial	Y	W-1	
11	X	X			X	X	3	N	Y	Y	NA	Absence of Geomorphic Position, upland vegetation
12	X	X	X	X	X	X	5	N	Partial	Y	NA	Elevated property line, upland vegetation
13	X						0	N	N	N	NA	Absence of Geomorphic Position
14	X	X			X	X	3	N	N	Y	NA	Absence of Geomorphic Position
15	X	X				X	2	N	Partial	N	NA	Absence of Geomorphic Position
16	X	X		X			2	N	Partial	N	NA	Absence of Geomorphic Position
17	X	X	X	X	X	X	5	N	Partial	Y	NA	Field Access entrance

[1] Antecedent Precipitation Tool (APT) https://www.epa.gov/nwpr/antecedent-precipitation-tool-apt


2024 NORMAL
5/3/2024
Asher Rd
Baseline Rd
Jericho Cem
Sugar Grove
47
1
2
4
5
8
10
11
12
14
15
17
Galena Rd
9
Jets Towing & Services
Jets Design Shop
W Beecher Rd
E Beecher Rd
Kendall County Concrete
Google Earth
1000 ft
N


2023 DRY
6/19/2023
Ashe Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Jericho Cem
Sugar Grove
47
1
2
4
5
6
7
8
10
11
12
14
17
Galena Rd
Galena Rd
Galena Rd
9
Jets Towing & Services
Jets Design Shop
W Beecher Rd
E Beecher Rd
Eldamain Rd
Kendall County Concrete
Yorkville IL Wate
Google Earth
N
1000 ft


2018 NORMAL
7/11/2018
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Ashler Rd
Mighell Rd
Jericho Cem
Sugar Grove
1
2
4
5
12
16
17
Galena Rd
Galena Rd
Galena Rd
Jets Towing & Services
Jets Design Shop
6
7
8
W Beecher Rd
E Beecher Rd
W Beecher Rd
Eldamain Rd
Kendall County Concrete
Cleargrove Dr
Yorkville IL Wate
47
9
N
1000 ft
Google Earth


2017 NORMAL
9/9/2017
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Ashler Rd
Mighell Rd
Jericho Cem
Sugar Grove
1
2
3
4
5
6
7
8
10
12
17
Galena Rd
Galena Rd
Galena Rd
Jets Towing & Services
Jets Design Shop
Eldamain Rd
W Beecher Rd
E Beecher Rd
W Beecher Rd
Kendall County Concrete
Castaway Ct
Yorkville, L Wate
47
47
47
9
N
1000 ft
Google Earth


2015 NORMAL
9/20/2015
Asher Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Jericho Cem
Sugar Grove
47
1
2
3
4
5
6
7
8
10
11
12
14
15
16
17
Galena Rd
Galena Rd
Galena Rd
9
Jets Towing & Services
Jets Design Shop
W Beecher Rd
E Beecher Rd
Kendall County Concrete
Yorkville IL Wate
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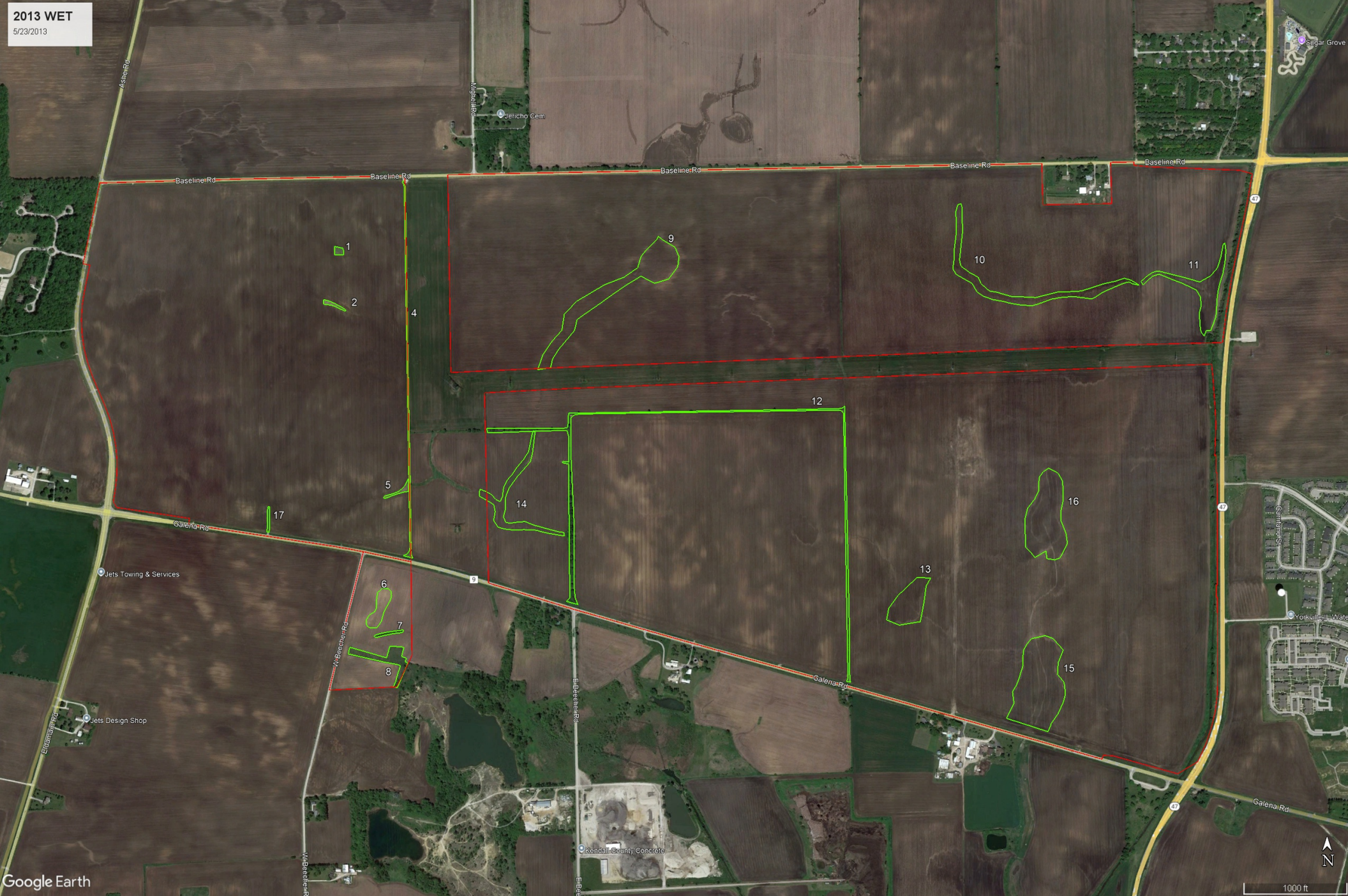
2013 WET
5/23/2013
Asher Rd
Miguelon Rd
Jericho Cem
Sugar Grove
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
Baseline Rd
1
2
4
9
10
11
12
5
14
16
17
Galena Rd
Jets Towing & Services
6
7
8
13
15
W Beecher Rd
E Beecher Rd
Galena Rd
Eldamain Rd
Jets Design Shop
Kendall County Concrete
Galena Rd
Google Earth
N
1000 ft


BURNS
McDONNELL