SHIVEHATTERY
ARCHITECTURE + ENGINEERING

September 14, 2018

Rock Island Corps of Engineers
1 Clock Tower Building
1500 Rock Island Drive
Rock Island, IL 61201

RE: IEDA Certified Site Program Jurisdictional Determination
Princeton, Iowa
Shive-Hattery PN: 3174430

To Whom It May Concern:

Enclosed, please find the request for an Approved Jurisdictional Determination, wetland delineation report, and associated maps for the Anderson 400 property in Princeton, Iowa. The Anderson family is in the process of obtaining IEDA Green Certification Program site certification from the Iowa Economic Development Authority (IEDA) for their 400-acre property. The certification they are working to obtain is for a Green Business Park. Per the IEDA's certification requirements, the Andersons are required to obtain an Approved Jurisdictional Determination letter from the U.S. Army Corps of Engineers for wetlands and other Waters of the United States.

As indicated above, the intent of this development is to be a Green Business Park. Therefore, the wetlands delineated in this report will be required to be designated as "undevelopable" and will be preserved within the Master Development Plan and integrated into the property's permanent open space areas for preservation. A city ordinance and property covenants are in the process of being adopted by the City of Princeton to ensure that this occurs as the property develops. Future developers of this property will be required to provide a minimum of a 100-foot buffer surrounding the wetlands within the 400-acre business park.

We would be happy to meet with you to discuss this program and answer any questions you may have for this development. Please contact Jake Wilson at (515) 645-9729 or by email at jwilson@shive-hattery.com with any questions and/or to schedule a meeting to discuss this project.

Sincerely,
SHIVE-HATTERY, INC.

Jake Wilson
Environmental Scientist

Enclosures: Wetland Delineation

Shive-Hattery | 1701 River Drive | Suite 200 | Moline, IL 61265 | 309.764.7650 | shive-hattery.com

JOINT APPLICATION FORM FOR IOWA

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3. and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant)	4. Authorized Agent (an agent is not required)
Marijo Anderson Company Name (if any) Address 2745 Hidden Valley Trail NE City, State, Zip Solon, Iowa 52333 Email Address mj.anderson50911@outlook.com	Company Name (if any) Address City, State, Zip Email Address	Jake Wilson Company Name (if any) Shive-Hattery Address 4125 Westown Parkway, Suite 100 City, State, Zip West Des Moines, Iowa 50266 Email Address jwilson@shive-hattery.com
Applicant's Phone Nos. w/area code Business: Residence: (563) 320-5252 Cell: Fax:	Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: (515) 645-9729 Residence: Cell: Fax: (515) 288-0053

STATEMENT OF AUTHORIZATION

I hereby authorize, Jake Wilson to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Marijo Anderson — Applicant's Signature

9-14-18 — Date

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body)

Name	Mailing Address	Phone No. w/area code
1.		
2.		
3.		

6. PROJECT TITLE:
Anderson 400, Princeton Development

7. PROJECT DESCRIPTION (Include all features): This project is an anticipated green business park that is seeking Green Business Park (GBP) development certification from the Iowa Economic Development Authority (IEDA). The site is located on the western boundary of Princeton, Iowa. The wetlands delineated in the delineation report will be required to be designated as "undevelopable" and will be preserved within the Master Development Plan and integrated into the property's permanent open space areas for preservation. A city ordinance and property covenants are in the process of being adopted by the City of Princeton to ensure that this occurs as the property develops. Future developers of this property will be required to provide a minimum of a 100-foot buffer surrounding the wetlands within the 400-acre business park. We request an Approved Jurisdictional Determination for this project area.

8. PURPOSE AND NEED OF PROJECT: The purpose of this project is to develop current agricultural land into a green business park in an area suitable for such a project.

The need for this project is that the surrounding area doesn't offer a nature-focused location for development of business.

Submission of the appropriate form(s) **is required** by the Iowa Department of Natural Resources Flood Plain Management Program (also known in this form as the Flood Plain Permits Section). The forms for various project types can be obtained online within http://floodplain.iowadnr.gov/ or by calling 866/849-0321.

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

9. REASON(S) FOR DISCHARGE:

10. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS:
TYPE:

AMOUNT IN CUBIC YARDS:

11. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED, AND STREAM LENGTH IF APPLICABLE (See Instructions)

12. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)
Future developers of this property will be required to provide a minimum of a 100-foot buffer surrounding the wetlands and other WUS within the 400-acre business park.

13. PROJECT LOCATION

LATITUDE: 41.662708 LONGITUDE: -90.354662			**GIS Coordinates in NAD 1983 UTM Zone 15** Northing: Easting:		
STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION Bud Creek joins Mississippi			LEGAL DESCR	QUARTER	SECTION	TOWNSHIP NO. 79N	RANGE 5E
☐ IN OR ☒ NEAR CITY OR TOWN (check appropriate box) Municipality Name Princeton, Iowa			WATERWAY			RIVER MILE (if applicable)	
COUNTY Scott	STATE Iowa	ZIP CODE 52768	Bud Creek				

14. Date activity is proposed to commence ? Date activity is expected to be completed ?

15. Is any portion of the activity for which authorization is sought now complete? ☐ Yes ☒ No
NOTE: If answer is "YES" give reasons in the Project Description and Remarks section.

Month and Year the activity was completed - Indicate the existing work on drawings.

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial

17. CONSENT TO ENTER PROPERTY LISTED IN PART 13 ABOVE IS HEREBY GRANTED. ☒ Yes ☐ No

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Jake Wik — Signature of Applicant or Authorized Agent — 9/14/2018 — Date

Signature of Applicant or Authorized Agent — Date

Signature of Applicant or Authorized Agent — Date

☐ Corps of Engineers Revised 2014 ☐ Iowa DNR Attn: Flood Plain Permit Section ☐ Iowa DNR Attn: Sovereign Lands Section ☐ Applicant's Copy

Anderson Princeton Development - Wetland Delineation Report

Prepared For:

The Anderson 400 Property
Paul and Marijo Anderson

Project No. 3174430

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

1701 River Drive | Suite 200 | Moline, IL 61265

309.764.7650 | 309.764.8616 | shive-hattery.com

Table of Contents

List of Tables

List of Appendices

Introduction

Shive-Hattery was contracted by the property owners of the Anderson 400 property to complete a wetland delineation within the complete boundaries of the proposed “Anderson 400”. This project is an anticipated green business park that is seeking Green Business Park (GBP) development certification from the Iowa Economic Development Authority (IEDA). The site is located on the western boundary of Princeton, Iowa (Figure 1, Project Area Location). The wetland delineation was performed on July 24th and July 25th, 2018.

The scope of this investigation was to indicate the presence or absence of wetlands, identify any wetlands that could be impacted by the project, and delineate upper boundaries of potential jurisdictional wetlands in the project area. Waters of the United States (WUS), which includes lakes, ponds, rivers, and streams, were also included in the delineation. This report is used by the United States Army Corps of Engineers (USACE) and the Iowa Department of Natural Resources (IDNR). The USACE has discretion to use this report to make jurisdictional determinations and enforce Section 404 of the Clean Water Act. The IDNR uses this report to enforce Section 401 of the Clean Water Act.

The information and recommendations presented in this report are professional opinions based on visual observation, review of available data, and interpretation of available public records. The opinions and recommendations presented apply to the subject property at the time of the Shive-Hattery, Inc. investigation.

Background

General Description of Project Area

The project boundary is located just south of Princeton, Iowa (Figure 1, Project Area Location). The project boundary is situated in Section 3, 10, 11, 14, and 15 of Township 79 North, Range 5 East in Scott County. The site is bordered by US Highway 67 to the east, and neighboring farmed croplands to the north, west, and the south. The project area consists of open farmed croplands of corn and soybean with some forested areas to the northern and eastern portions of the site. Bud Creek intersects the site and drains into the Mississippi River.

The property owners, the Anderson Family, is in the IEDA Green Certification Program process of obtaining site certification from the Iowa Economic Development Authority (IEDA) for their 400 acre property for the development of an eco-friendly designed business park.

Prior to field investigations, several map and aerial photograph resources were reviewed to assist with identifying wetland areas and other WUS in the project area. Each source of information included as part of this investigation is described below.

USGS Topographic Maps and LiDAR Data

The United States Geological Survey (USGS) 7.5-Minute Topographic Map (Figure 2, USGS Topographic Map) includes towns, roads, streams, landmark features, contour lines, general delineation of wet areas, drainage, and general land uses. This was used to identify drainages or WUS within the project area. In addition, LiDAR 2-foot contours were obtained to assess the drainage of the survey area (Figure 3, LiDAR 2-Foot Contour Map).

The survey area is farmed rolling hills with intermittent patches of woodland in low-lying areas. Bud Creek, a perennial stream, enters the project area from the west-central portion of the site and exits the southwest portion of the site, where it ultimately drains into the Mississippi River. An unnamed perennial

stream enters the project area from the south-central boundary. This stream drains into the aforementioned Bud Creek. The map also shows a home farmstead on the property.

National Wetland Inventory

The National Wetlands Inventory (NWI) maps are produced at a scale of 1:24,000. Wetlands on NWI maps are classified in accordance with Cowardin et al. (1979), and depict probable wetland areas based on stereoscopic analysis of high altitude aerial photographs. The NWI map was reviewed to identify potential wetland areas located on the project site. As shown in Figure 4, National Wetlands Inventory, the following wetland areas were identified in the project area:

- PEMCx: Palustrine, Emergent, Seasonally Flooded, Excavated
- R2UBF: Riverine, Lower Perennial, Unconsolidated Bottom, Semi-permanently Flooded
- R2UBG: Riverine, Lower Perennial, Unconsolidated Bottom, Intermittently Exposed

USDA Soil Survey

The Scott County Soil Survey provided by the United States Department of Agriculture (USDA) was used to identify the hydric soils in the project area. As shown in Figure 5, NRCS Soil Survey Data, 2 soils with hydric components are indicated in the project area. The Soil Map Unit, Soil Description, and Hydric Soil Rating status for the soils of the delineation area are listed in **Table 1**.

Table 1: Soil Map Units and Descriptions

Soil Map Unit	Description	Hydric Soil
20D2	Killduff silty clay loam, 9 to 14 percent slopes, eroded	Yes
65G	Lindley loam, 25 to 40 percent slopes	No
120B2	Tama silty clay loam, 2 to 5 percent slopes, eroded	No
120C2	Tama silty clay loam, 5 to 9 percent slopes, eroded	No
179F2	Gara loam, 18 to 25 percent slopes, moderately eroded	No
273C	Olmitz loam, 3 to 9 percent slopes	No
673E3	Timula silt loam, 14 to 18 percent slopes, severely eroded	No
763E3	Exette silt loam, 14 to 18 percent slopes, severely eroded	No
820B	Dockery silt loam, 2 to 5 percent slopes	Yes
M162B	Downs silt loam, till plain, 2 to 5 percent slopes	No
M162C2	Downs silt loam, till plain, 5 to 9 percent slopes, eroded	No
M162D2	Downs silt loam, till plain, 9 to 14 percent slopes, eroded	No
M162D3	Downs silty clay loam, till plain, 9 to 14 percent slopes, severely eroded	No
M163C2	Fayette silt loam, till plain, 5 to 9 percent slopes, eroded	No
M163D2	Fayette silt loam, till plain, 9 to 14 percent slopes, eroded	No
M163E2	Fayette silt loam, till plain, 14 to 18 percent slopes, eroded	No
M163F	Fayette silt loam, till plain, 18 to 25 percent slopes	No
M163F2	Fayette silt loam, till plain, 18 to 25 percent slopes, eroded	No
M163F3	Fayette silty clay loam, till plain, 18 to 25 percent slopes, severely eroded	No

Climate Data

An evaluation of the antecedent precipitation and climate conditions for the site was conducted using multiple sources of available data. Weather conditions during the wetland delineation on July 24, 2018 were sunny at approximately 72° F with winds blowing from the southeast at approximately 12 mph. On July 25, 2018 the weather conditions were sunny at approximately 70° F with winds blowing from the east/southeast at approximately 12 mph. The area received 1.17 inches of rain the week prior to the wetland delineation.[1]

[1] https://www.wunderground.com/history/

Current climate data was obtained from the NRCS Field Office Technical Guide (FOTG) website for LE CLAIRE L & D 14, IA. The average temperature in June, the month prior to delineation, was 74.0° F. Total precipitation recorded in June 2018 was 7.61 inches, as shown in **Table 2**. Additionally, precipitation and temperature data for the month of July was also reviewed, as shown in **Table 3**. The average climate data for the days in July preceding delineation were an average temperature of 76.2° F and total precipitation of 3.3 inches.

Table 2: Climatological Data for LE CLAIRE L & D 14, IA – June 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation
2018-06-01	90	70	80	40	30	0
2018-06-02	90	57	73.5	34	24	0
2018-06-03	82	56	69	29	19	0
2018-06-04	79	56	67.5	28	18	0
2018-06-05	83	56	69.5	30	20	0
2018-06-06	90	58	74	34	24	0
2018-06-07	88	57	72.5	33	23	0.46
2018-06-08	89	64	76.5	37	27	0
2018-06-09	79	62	70.5	31	21	1.88
2018-06-10	84	65	74.5	35	25	0.77
2018-06-11	76	64	70	30	20	0
2018-06-12	75	65	70	30	20	0.01
2018-06-13	82	68	75	35	25	0
2018-06-14	79	64	71.5	32	22	0
2018-06-15	71	64	67.5	28	18	0
2018-06-16	91	66	78.5	39	29	0
2018-06-17	93	74	83.5	44	34	0
2018-06-18	90	78	84	44	34	0
2018-06-19	93	73	83	43	33	0
2018-06-20	84	69	76.5	37	27	0.15
2018-06-21	83	68	75.5	36	26	3.45
2018-06-22	76	62	69	29	19	0.35
2018-06-23	70	62	66	26	16	0.05
2018-06-24	80	64	72	32	22	0
2018-06-25	81	64	72.5	33	23	0
2018-06-26	81	63	72	32	22	0
2018-06-27	80	67	73.5	34	24	0.49
2018-06-28	82	67	74.5	35	25	0
2018-06-29	85	69	77	37	27	0
2018-06-30	90	71	80.5	41	31	0
Average|Sum	**83.2**	**64.8**	**74**	**1028**	**728**	**7.61**

Data generated by ACIS – NOAA Regional Climate Centers

** DAILY DATA FOR A MONTH - daily maximum, minimum and average temperature (degrees F), base 40 and base 50 growing degree days (GDD), and precipitation for all days of the selected month. Basic monthly summary statistics are also provided. Values of 'M' indicate missing data and values of 'T' indicate a trace.*

Table 3: Climatological Data for LE CLAIRE L & D 14, IA – July 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation
2018-07-01	93	71	82	42	32	0
2018-07-02	88	65	76.5	37	27	0
2018-07-03	85	65	75	35	25	0
2018-07-04	88	65	76.5	37	27	0
2018-07-05	92	76	84	44	34	0.13
2018-07-06	89	67	78	38	28	0
2018-07-07	81	60	70.5	31	21	0
2018-07-08	83	60	71.5	32	22	0
2018-07-09	86	65	75.5	36	26	0
2018-07-10	91	68	79.5	40	30	0
2018-07-11	89	69	79	39	29	0
2018-07-12	88	70	79	39	29	0
2018-07-13	91	71	81	41	31	0
2018-07-14	91	71	81	41	31	1.95
2018-07-15	83	70	76.5	37	27	0
2018-07-16	86	70	78	38	28	M
2018-07-17	86	66	76	36	26	0
2018-07-18	86	66	76	36	26	0
2018-07-19	81	65	73	33	23	0
2018-07-20	76	64	70	30	20	1.13
2018-07-21	76	64	70	30	20	0.02
2018-07-22	82	65	73.5	34	24	0.02
2018-07-23	74	65	69.5	30	20	0.00
Average|Sum	**85.4**	**66.9**	**76.2**	**836**	**606**	**3.3**

Data generated by ACIS – NOAA Regional Climate Centers

** DAILY DATA FOR A MONTH - daily maximum, minimum and average temperature (degrees F), base 40 and base 50 growing degree days (GDD), and precipitation for all days of the selected month. Basic monthly summary statistics are also provided. Values of 'M' indicate missing data and values of 'T' indicate a trace.*

Methodology

The wetland delineation was conducted on July 24th and 25th, 2018 by Jake Wilson (Environmental Scientist) and Stacey Brockett (Landscape Architect Intern), both of Shive-Hattery, during a pedestrian field survey using the Routine On-Site Determination Method as defined in the *1987 Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region [Version 2.0] (2010 Midwest Supplement)*. Wetlands are defined by the USACE and the Environmental Protection Agency (EPA) as:

"Those areas that are inundated or saturated by surface or groundwater 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. Wetlands generally include swamps, marshes, bogs, and similar areas." (Corps 1987).

Under normal conditions, if one or more of the wetland criteria are not identified, the area was not considered a wetland. If all three wetland indicators were identified, the area was classified a wetland. Additional observations were made throughout the wetland areas to define the wetland/non-wetland boundary, which was mapped with GPS technology. Vegetation, soil, and hydrology assessment data from at least one location within each wetland and the characteristics of one upland location outside of the wetlands were recorded on a USDA Wetland Determination Form. Data forms for this wetland delineation are enclosed in Appendix C and the data point locations are shown in Figure 6.

Plant Community Assessment

The project area was visually assessed to determine plant species and absolute ground cover percentage of four plant community stratums including tree, sapling/shrub, herbaceous, and woody vine. The vegetation for each stratum was identified using various plant identification guides.

Each dominant species of observed vegetation was assessed for its wetland indicator status. Indicator status was assessed using the USDA *The PLANTS Database* (USDA, NRCS 2018) and the *National List of Plant Species that Occur in Wetlands – Region 3* (Reed 1988). The indicator status for vegetation are:

- Obligate Wetland (OBL) – occurs almost always (estimated probability greater than 99%) under natural conditions in wetlands.
- Facultative Wetland (FACW) – usually occur in wetland (estimated probability 67% - 99%), but occasionally found in non-wetlands.
- Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34% - 66%).
- Facultative Upland (FACU) – usually occur in non-wetlands (estimated probability 67% - 99%), but occasionally found in wetlands.
- Obligate Upland (UPL) – rarely occurs in wetlands, but occur almost always (estimated probability greater than 99%) under natural conditions in non-wetlands.

Hydric Soil Assessment

Subsurface soil samples were collected to a depth of approximately 24 inches. These samples were assessed using Munsell Soil Color Charts (Munsell 1994). The soil samples were also evaluated for hydric soil indicators listed on the USACE Midwest Region Wetland Determination Data Form. The soil was considered hydric if the appropriate hydric indicators were observed in the subsurface soil sample.

Wetland Hydrology Assessment

Potential wetland areas were visually assessed for wetland hydrology indicators. To be considered having wetland hydrology, an area had to have one (1) primary or two (2) secondary indicators present.

Wetland Delineation Findings

Field investigations were performed on July 24 and July 25, 2018 by Shive-Hattery to identify potential WUS, including wetlands. Four emergent wetland, one scrub/shrub wetland, one forested wetland, two perennial streams, two ephemeral streams, and four erosional features were delineated within the project area: WL1, WL2, WL3, WL4, WL5, WL6, PS1, PS2, ES1, ES2, EF1, EF2, EF3, and EF4. A summary of characteristics are provided in **Table 4**. The attached data forms (Appendix C) document

additional detail on the dominant plant species, results of the soil sampling, and hydrology observations for each sample point. Photographs of delineated wetlands, as well as other potential WUS, are provided in Appendix A.

Wetland WL1

0.05 acres
Data Points: W1, U1

Wetland WL1 is an emergent, palustrine wetland located along the northwestern portion of the project area. This wetland area is not identified on the NWI and is a depressional area that lies within a grassed waterway with an erosional feature (EF1) located within it. The upland/wetland transition is marked by both a change in slope as well as a notable change in vegetation. Dominant vegetation within this wetland consists of cattail (*Typha latifolia*), giant goldenrod (*Solidago gigantea*), and common milkweed (*Asclepias syriaca*). Because this wetland has a hydrologic connection to Bud Creek through an erosional feature (EF1), and ultimately the Mississippi River, this wetland is likely jurisdictional WUS.

Wetland WL2

0.07 acres
Data Points: W2, U2

Wetland WL2 is an emergent, palustrine wetland located along the northwestern portion of the project area. This wetland area is not identified on the NWI and is a depressional area that lies within a grassed waterway with an erosional feature (EF1) located within it. The upland/wetland transition is marked by both a change in slope as well as a notable change in vegetation. Dominant vegetation within this wetland consists of black willow (*Salix nigra),* reed canarygrass (*Phalaris arundinacea*), American fox sedge (*Carex vulpinoidea*), and common milkweed (*Asclepias syriaca*). Because this wetland has a hydrologic connection to Bud Creek through an erosional feature (EF1), and ultimately the Mississippi River, this wetland is likely jurisdictional WUS.

Wetland WL3

0.40 acres
Data Points: W3, U3

Wetland WL3 is a forested, palustrine wetland located along the northern portion of the project area. This wetland area is not identified on the NWI. This wetland is a low-lying area along an unnamed ephemeral stream (ES1). The upland/wetland transition is marked by both a change in slope as well as a notable change in vegetation. Dominant vegetation within this wetland consists of common hackberry (*Celtis occidentalis),* white mulberry (*Morus alba*), Japanese honeysuckle (*Lonicera japonica*), Longstyle Sweetroot *(Osmorhiza longistylis*), and wood nettle (*Laportea Canadensis).* Because this wetland has a hydrologic connection to Bud Creek through an unnamed ephemeral stream (ES1), and ultimately the Mississippi River, this wetland is likely jurisdictional WUS.

Wetland WL4

0.25 acres
Data Points: W4, U4

Wetland WL4 is a scrub/shrub, palustrine wetland located along the southeastern portion of the project area. This wetland area is not identified on the NWI. This wetland is a low-lying area within a waterway.

The upland/wetland transition is marked by both a change in slope as well as a notable change in vegetation. Dominant vegetation within this wetland consists of black willow (*Salix nigra*) and reed canarygrass (*Phalaris arundinacea*). Because this wetland has a direct hydrologic connection to the Mississippi River, it is likely jurisdictional WUS.

Wetland WL5

0.71 acres
Data Points: W5, U5

Wetland WL5 is an emergent, palustrine wetland located along the eastern portion of the project area along the entrance drive and US Highway 67. This wetland area is not identified on the NWI. The upland/wetland transition is marked by both a change in slope as well as a notable change in vegetation. Dominant vegetation within this wetland consists of American sycamore (*Platanus occidentalis)* and reed canarygrass *(Phalaris arundinacea).* This wetland is directly connected to Bud Creek (PS1) and is likely jurisdictional WUS.

Wetland WL6

0.10 acres
Data Points: W6, U6

Wetland WL6 is an emergent, palustrine wetland located along the southeastern portion of the project area. This wetland area is not identified as on the NWI. The upland/wetland transition is marked by both a change in slope as well as a notable change in vegetation. Dominant vegetation within this wetland consists of reed canarygrass (*Phalaris arundinacea*). Because this wetland has a direct hydrological connection to the Mississippi River, it is likely jurisdictional WUS.

Perennial Stream PS1

Perennial stream PS1 is a named stream, Bud Creek, which enters the project area from the west and occupies approximately 7,362 linear feet of the project area, until it exits and drains into the Mississippi River on the east boundary of the project area. The stream has well-vegetated vertical banks for its entire length through the project area. This stream is identified as R2UBF on the NWI. The stream had flowing, clear water at the time of delineation with a stream bottom substrate that was predominately sand and silt, with riffles consisting of cobble and gravel. This perennial stream has an ordinary high water mark and is directly connected to the Mississippi River. The stream is likely considered jurisdictional WUS.

Perennial Stream PS2

Perennial stream PS2 is an unnamed perennial stream that enters the project area from the south edge of the project boundary. The stream occupies approximately 2,509 linear feet of the project area until its confluence with Bud Creek (PS1). The stream has well-vegetated vertical banks for its entire length through the project area. This stream is identified as PEMCx on the NWI. The stream had flowing, clear water at the time of delineation with a stream bottom substrate that was predominately sand and silt. This perennial stream has an ordinary high water mark and is directly connected to Bud Creek, which is directly connected to the Mississippi River. The stream is likely considered jurisdictional WUS.

Ephemeral Stream ES1
Ephemeral stream ES1 is an unnamed ephemeral stream that enters the project area from the northeast boundary of the project area and occupies approximately 1,866 linear feet of the project area, until it drains into Bud Creek PS1. The stream has sparsely vegetated vertical banks for its entire length through the project area. This stream is not identified on the NWI. The stream was dry at the time of delineation. The stream bottom substrate that was predominately sand and silt. This ephemeral stream has an ordinary high water mark and is directly connected to Bud Creek (PS1). The stream is likely considered jurisdictional WUS.

Ephemeral Stream ES2
Ephemeral stream ES2 is an unnamed ephemeral stream that starts in the west portion of the project area from overland drainage from adjacent crop land and occupies approximately 266 linear feet until it drains into Bud Creek (PS1). The stream has sparsely vegetated vertical banks for its entire length through the project area. This stream is not identified on the NWI. The stream had minimal flow of clear water at the time of delineation with a stream bottom substrate that was predominately sand and silt. This ephemeral stream has an ordinary high water mark and is directly connected to Bud Creek (PS1). The stream is likely considered jurisdictional WUS.

Erosional Feature EF1
Erosional feature EF1 is a “V” shaped ditch that enters the study area from the north boundary in the western portion of the study area and occupies approximately 1,133 linear feet of the project area. This erosional feature is a shallow ditch that runs through a grassed waterway and intersects wetlands WL1 and WL2. The erosional feature is not identified on the NWI and lacked flowing water at the time of delineation. The erosional feature lacks a well-defined bed and bank, or an ordinary high mark. As a result, this erosional feature is likely not jurisdictional WUS.

Erosional Feature EF2
Erosional feature EF2 is a “V” shaped ditch that enters the study area from the southeastern portion of the study area after it exits from wetland WL4 and occupies approximately 253 linear feet of the project area until it enters wetland WL6. It has steeply sloping banks that are sparsely vegetated. The ditch is not identified on the NWI and lacked flowing water at the time of delineation. The ditch lacks a well-defined bed and bank, or an ordinary high mark. The erosional feature is likely not jurisdictional WUS.

Erosional Feature EF3
Erosional feature EF3 is a “V” shaped ditch that begins as a knick-point from the adjacent farm field. The ditch occupies approximately 97 linear feet of the project area. It has steeply sloping banks that are not vegetated. The ditch is not identified on the NWI and lacked flowing water at the time of delineation. The ditch lacks a well-defined bed and bank, or an ordinary high mark. The erosional feature is likely not jurisdictional WUS.

Erosional Feature EF4
Erosional feature EF4 is a “V” shaped ditch that occupies approximately 135 linear feet of the project area. It has steeply sloping banks that are not vegetated. The ditch is not identified on the NWI and lacked flowing water at the time of delineation. The ditch lacks a well-defined bed and bank, or an ordinary high mark. The erosional feature is likely not jurisdictional WUS.

Table 4. Project Area Wetlands and Potential WUS

Area ID	Dominant Vegetation	Hydric Soil Indicator	Hydrology Indicators
WL1	*Typha latifolia* *Solidago gigantea* *Asclepias syriaca*	F6: Redox Dark Surface	D2: Geomorphic Position D5: FAC-Neutral Test
WL2	*Salix nigra* *Phalaris arundinacea* *Carex vulpinoidea* *Asclepias syriaca*	F6: Redox Dark Surface	D2: Geomorphic Position D5: FAC-Neutral Test
WL3	*Celtis occidentalis* *Morus alba* *Lonicera japonica* *Osmorhiza longistylis* *Laportea Canadensis*	F3: Depleted Matrix	D2: Geomorphic Position D5: FAC-Neutral Test
WL4	*Salix nigra* *Phalaris arundinacea*	F6: Redox Dark Surface	D2: Geomorphic Position D5: FAC-Neutral Test
WL5	*Platanus occidentalis* *Phalaris arundinacea*	F3: Depleted Matrix	D2: Geomorphic Position D5: FAC-Neutral Test
WL6	*Phalaris arundinacea*	F6: Redox Dark Surface	D2: Geomorphic Position D5: FAC-Neutral Test
PS1	NA	NA	NA
PS2	NA	NA	NA
ES1	NA	NA	NA
ES2	NA	NA	NA
EF1	NA	NA	NA
EF2	NA	NA	NA
EF3	NA	NA	NA
EF4	NA	NA	NA

Conclusions and Recommendations

Shive-Hattery has performed a Wetland Delineation in conformance with the *1987 Corps of Engineers Wetlands Delineation Manual and the Midwest Regional Supplement* of the proposed Anderson 400 Green Business Park project in Princeton, Iowa. Based on the wetland delineation, four (4) emergent wetlands, one (1) scrub/shrub wetland, one (1) forested wetland, two (2) perennial streams, and two (2) ephemeral streams identified within the project boundary are likely under jurisdiction of the USACE.

Four (4) erosional features within the project boundary are likely not under the jurisdiction of the USACE.

Through the IEDA certification and the green business park process, ordinances and covenants will be in place through applicable governing agencies through buffer zones of 100 feet or more to protect the habitat and features that exist on the property today.

Discharges of dredged or fill material, excavation, and mechanized land clearing in the WUS will require authorization from the USACE. Final determination of the limit of WUS, including wetlands, for permitting purposes rests with the USACE. For final authorization for activities in WUS, the USACE must approve the findings found within this report. No construction activities should commence prior to receiving wetland boundary approvals and relevant permits.

References

U.S. Army Corps of Engineers, 1987. Corps of Engineers Wetland Delineation Manual. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Technical Report Y-87-1.

USDA, NRCS. 2018. The PLANTS Database (http://plants.usda.gov, 3 July 2018). National Plant Data Team, Greensboro, NC 27401-4901 USA.

Reed, Porter. 1988. National List of Plant Species That Occur in Wetlands -- North Central (Region 3). National Wetland Inventory, U.S. Department of the Interior, Fish and Wildlife Service, St. Petersburg, FL. 90 pp.

Munsell Color. (1994). Munsell soil color charts. 1994. New Windsor.

Iowa State University, Geographic Information Systems Support & Research Facility. Spring 2016 Orthophoto. http://ortho.gis.iastate.edu/

Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Natural Resources Conservation Service. Field Office Technical Guide. 2017. https://efotg.sc.egov.usda.gov/treemenuFS.aspx.

Sprecher, Steven W. and Andrew G. Warne. 2000. "Accessing and Using Meteorological Data to Evaluate Wetland Hydrology." ERDC/EL TR-WRAP-00-1. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Army Corps of Engineers (USACE), 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service. Various years. National Wetland Inventory (NWI). U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. http://www.fws.gov/wetlands/

U.S. Geological Survey. 7.5-minute quadrangle maps. Reston, Va.: U.S. Department of the Interior.

U.S. Geological Survey, The National Map. 2017. U.S. Department of the Interior. National Hydrography Dataset. https://nhd.usgs.gov/

Appendix A - Photographs

Photo 1: Looking southeast at emergent wetland WL1 from Data Point W1.

Photo 2: Looking west at upland area adjacent to wetland WL1 from Data Point U1.

Photo 3: Looking east at emergent wetland WL2 and Data Point W2**.**

Photo 4: Upland data point U2 adjacent to wetland WL2. View looking northeast.

Photo 5: Forested wetland WL3 and adjacent upland. Ephemeral stream ES1 flows through center of wetland. View looking east.

Photo 6: Scrub/shrub wetland WL4. View looking west.

Photo 7: Emergent wetland WL5 and adjacent perennial stream PS1. View looking east.

Photo 8:.Emergent wetland WL6. Adjacent upland can be seen in the background.

Photo 9: Perennial stream PS1. View looking upstream and to the west.

Photo 10: Perennial stream PS1. View looking downstream and to the east.

Photo 9: Perennial stream PS2. View looking upstream and to the south.

Photo 10: Perennial stream PS2. View looking downstream and to the north. The confluence with Bud Creek is close to here.

Photo 11: Ephemeral stream ES1. View looking downstream and to the southeast.

Photo 12: Ephemeral stream ES1. View looking upstream and to the north.

Photo 13: Ephemeral stream ES2. View looking downstream and to the north.

Photo 14: Erosional feature EF1. Start of the v-shaped ditch in agricultural field. View looking southeast.

Photo 15: Erosional feature EF2. Ditch is located in thick undergrowth. View looking west.

Photo 16: Erosional feature EF3. Photo shows the start of the knick-point.

Photo 17: Erosional feature EF4. View looking south.

Photo 18: View looking northwest of northwest corner of property. Rolling hills are apparent.

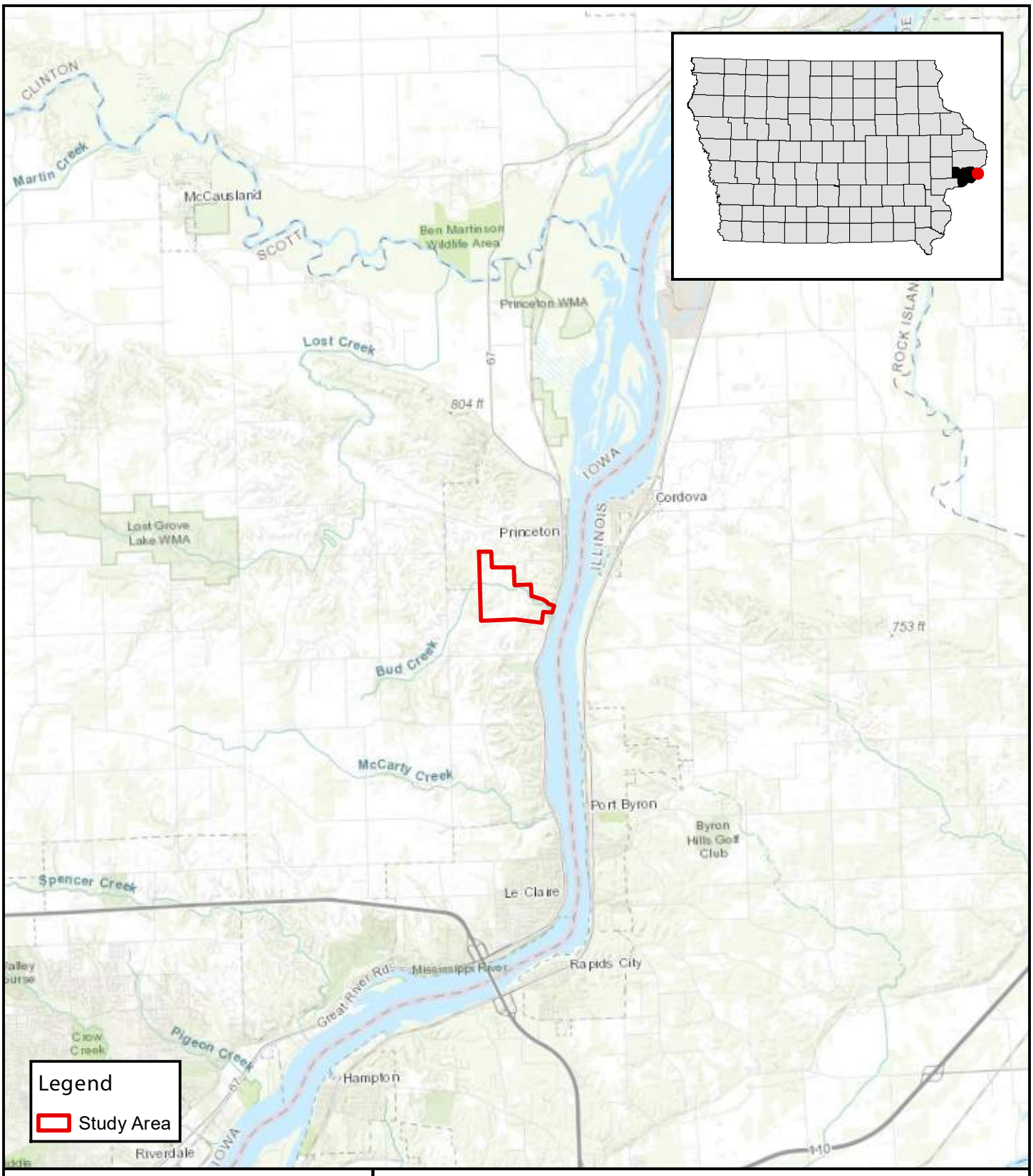
Photo 19: View looking southeast of the southwest corner of the property.

Photo 20: View looking east of the southeast corner of the property.

Photo 21: Japanese hops (*Humulus japonicus*) have started to invade the banks of perennial stream PS1.

Photo 22: Forested uplands in the northeast corner of the property. View looking east.

Appendix B - Figures

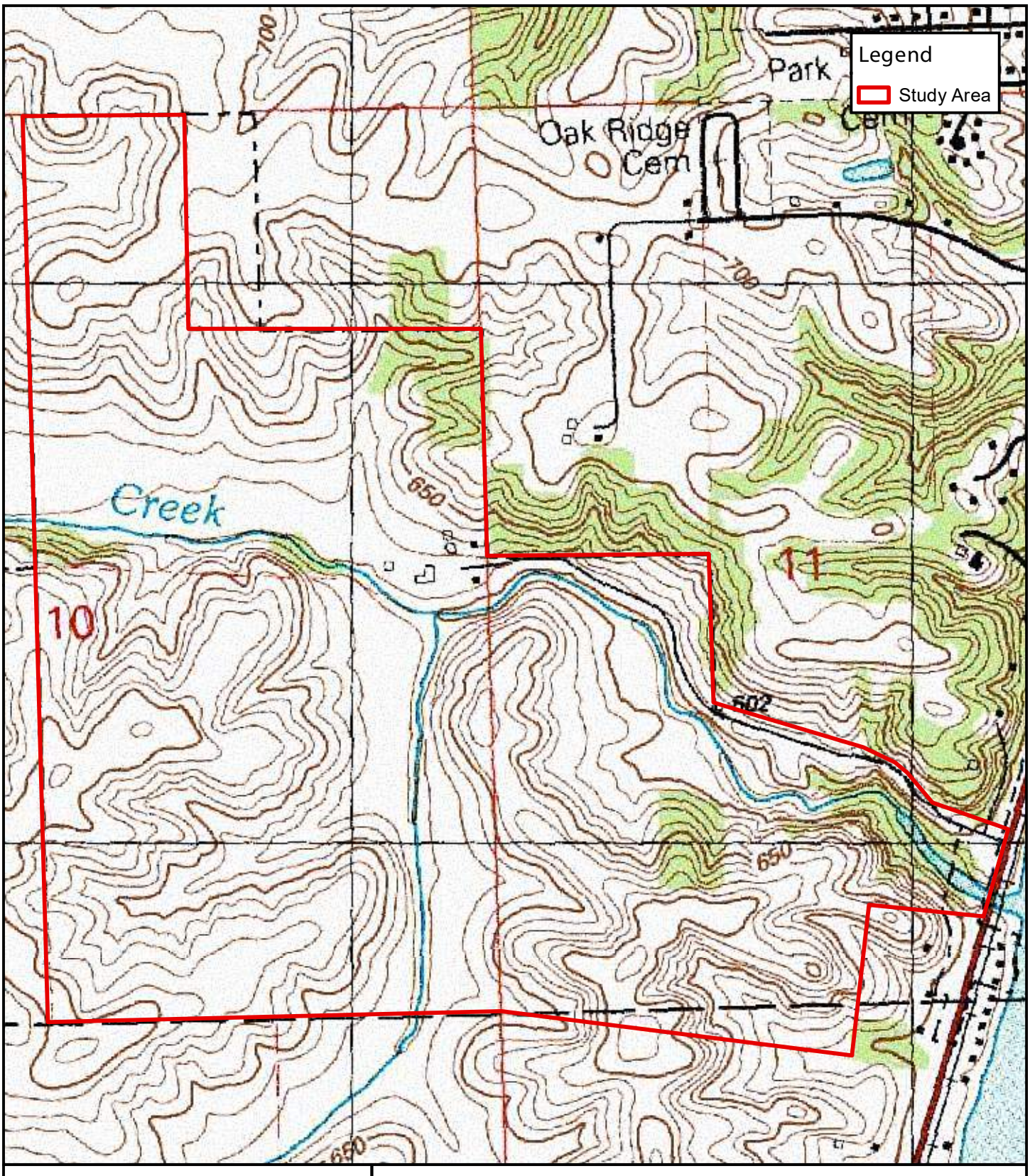


SHIVEHATTERY
ARCHITECTURE + ENGINEERING

Figure 1: Project Area Location

Anderson Princeton Development | Princeton, IA | Project #3174430

Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, OpenStreetMap contributors, and the GIS User Community



SHIVEHATTERY
ARCHITECTURE + ENGINEERING

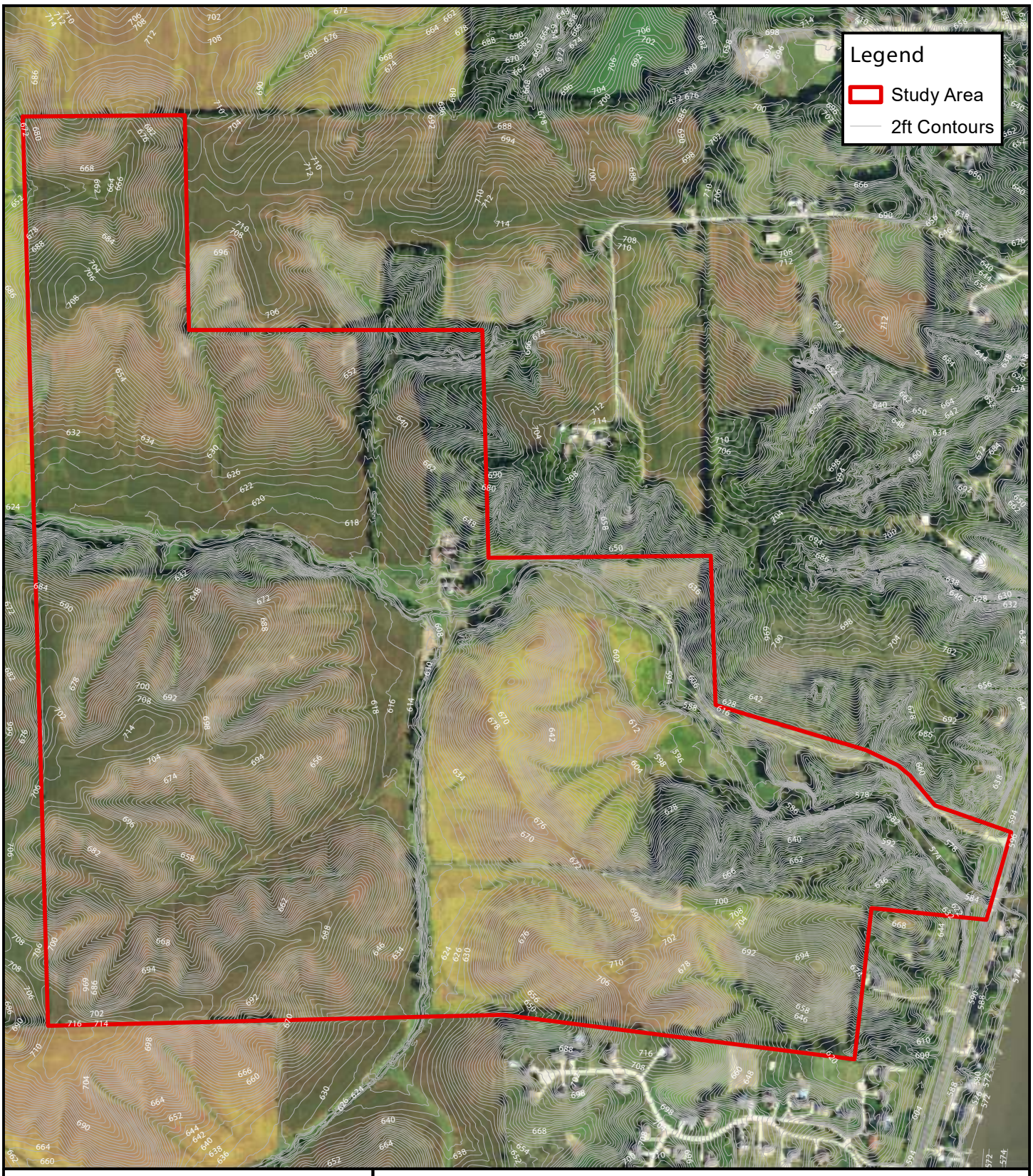
0 400 800 Feet

N

Figure 2: USGS Topographic Map

Anderson Princeton Development | Princeton, IA | Project #3174430

Data Sources: The National Map - USGS



SHIVEHATTERY
ARCHITECTURE + ENGINEERING

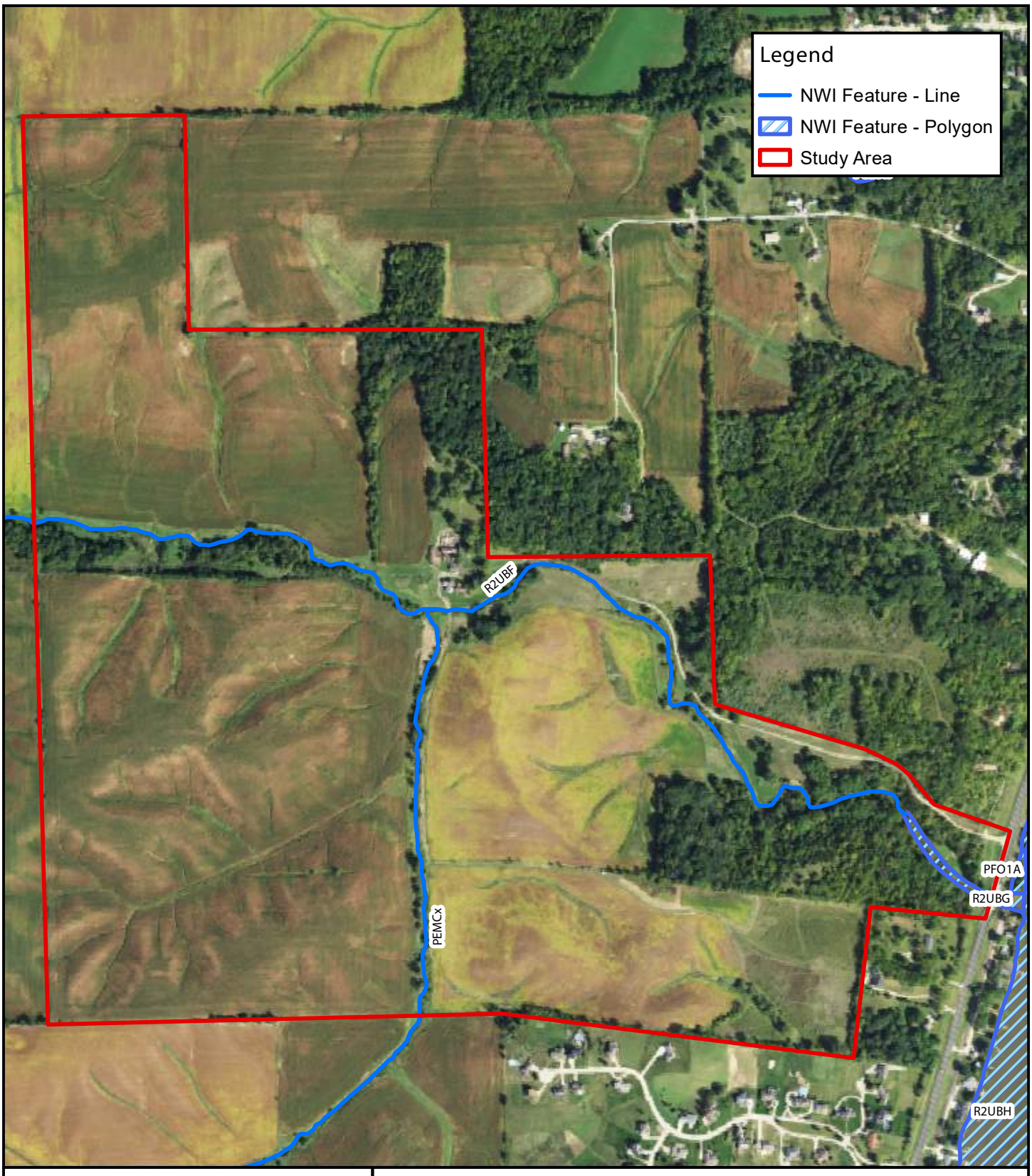
Figure 3: LiDAR 2-Foot Contour Map

Anderson Princeton Development | Princeton, IA | Project #3174430

0 400 800 Feet

N

Data Sources: IDNR NRGIS Library, ISU Iowa Geographic Map Server



SHIVEHATTERY
ARCHITECTURE + ENGINEERING

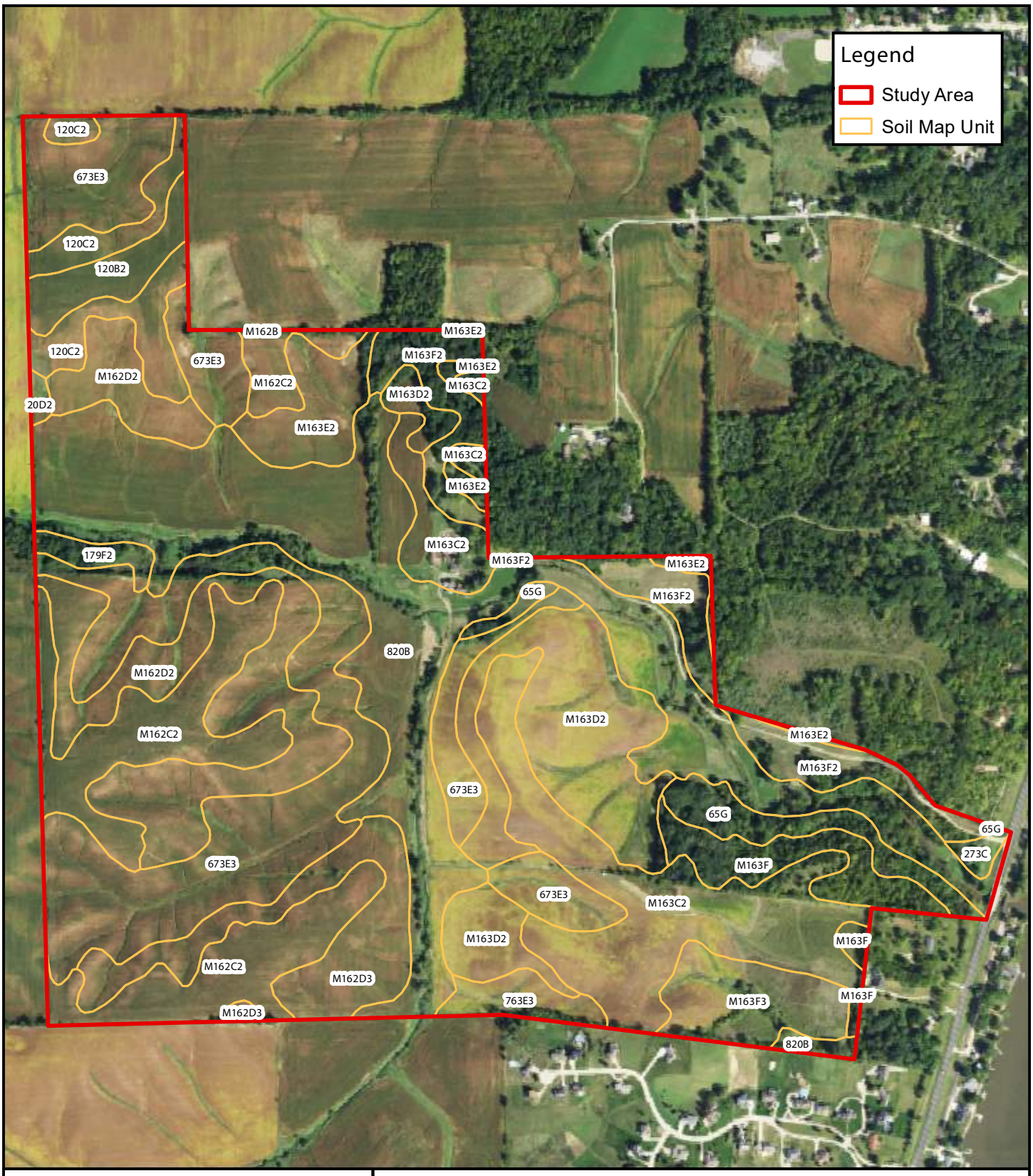
0 400 800 Feet

N

Figure 4: National Wetlands Inventory

Anderson Princeton Development | Princeton, IA | Project #3174430

Data Sources: US Fish & Wildlife Service, ISU Iowa Geographic Map Server

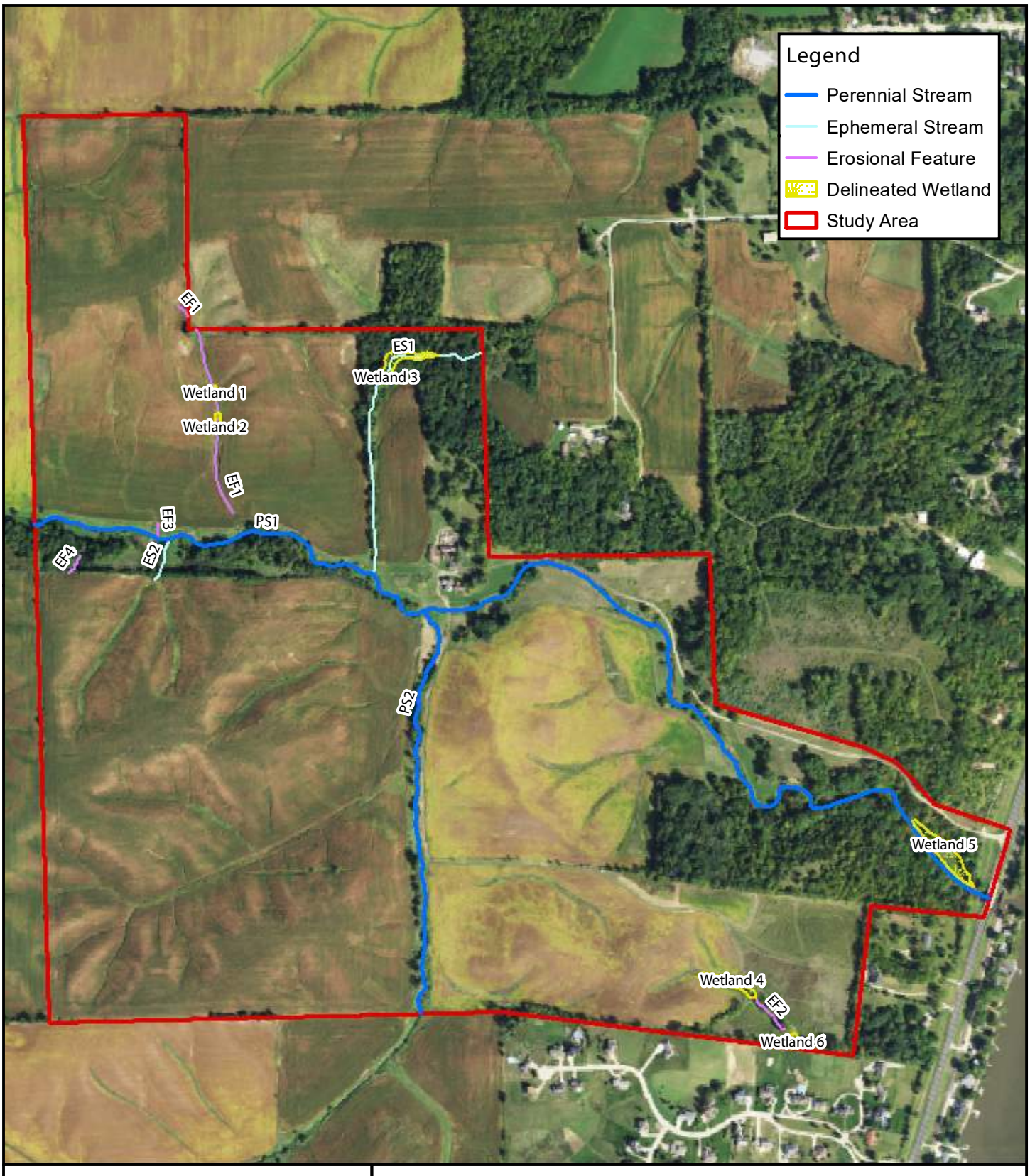


SHIVEHATTERY
ARCHITECTURE + ENGINEERING

Figure 5: NRCS Soil Survey Data

Anderson Princeton Development | Princeton, IA | Project #3174430

Data Sources: USDA-NRCS, ISU Iowa Geographic Map Server



SHIVEHATTERY
ARCHITECTURE + ENGINEERING

Figure 6: Wetland Delineation

Anderson Princeton Development | Princeton, IA | Project #3174430

0 400 800 Feet

N

Data Sources: ISU Iowa Geographic Map Server

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

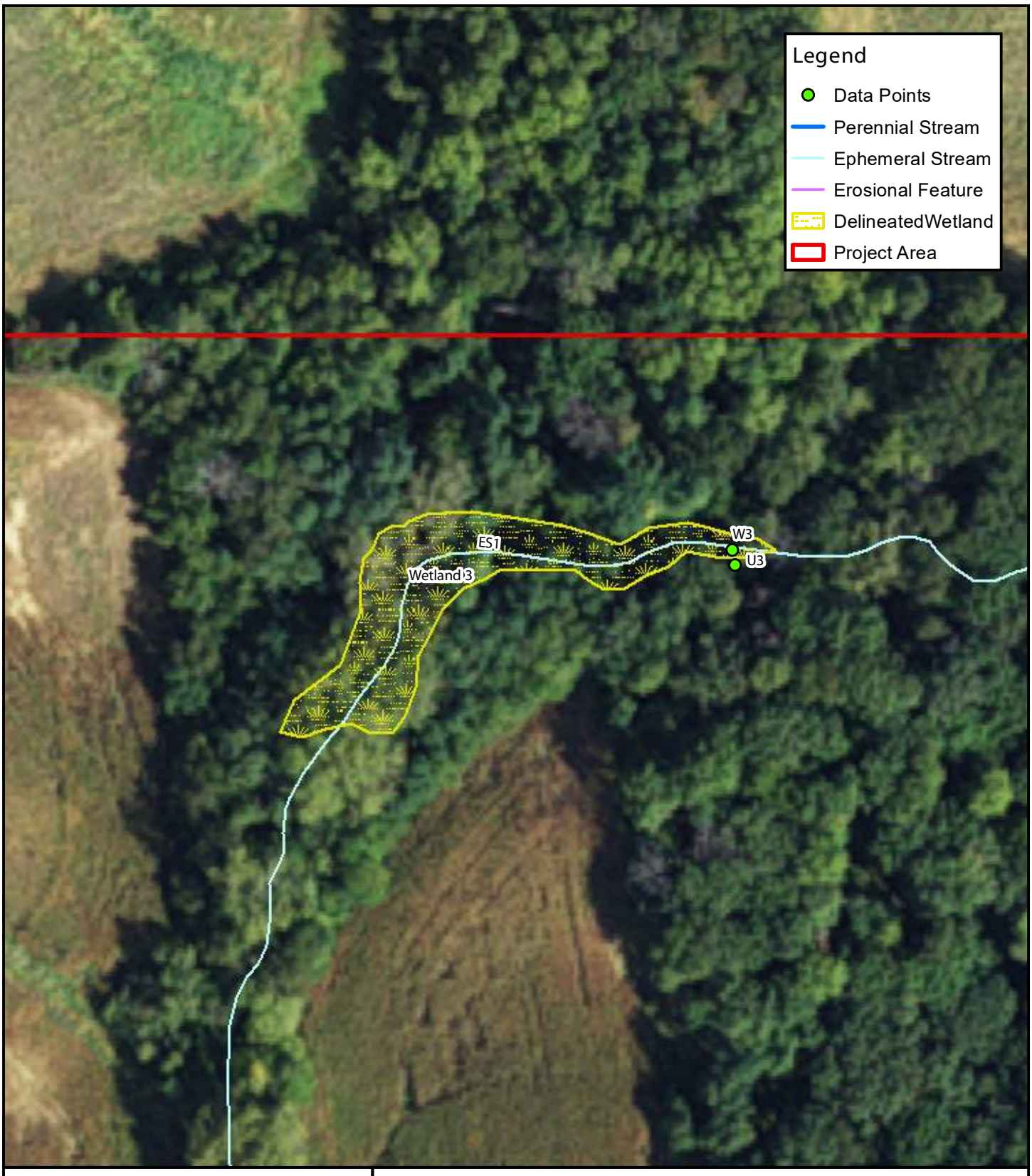
Figure 6a, Page 1 of 4: Wetland Delineation

Anderson Princeton Development | Princeton, IA | Project #3174430

0 50 100 Feet

N

Data Sources: ISU Iowa Geographic Map Server



SHIVEHATTERY
ARCHITECTURE + ENGINEERING

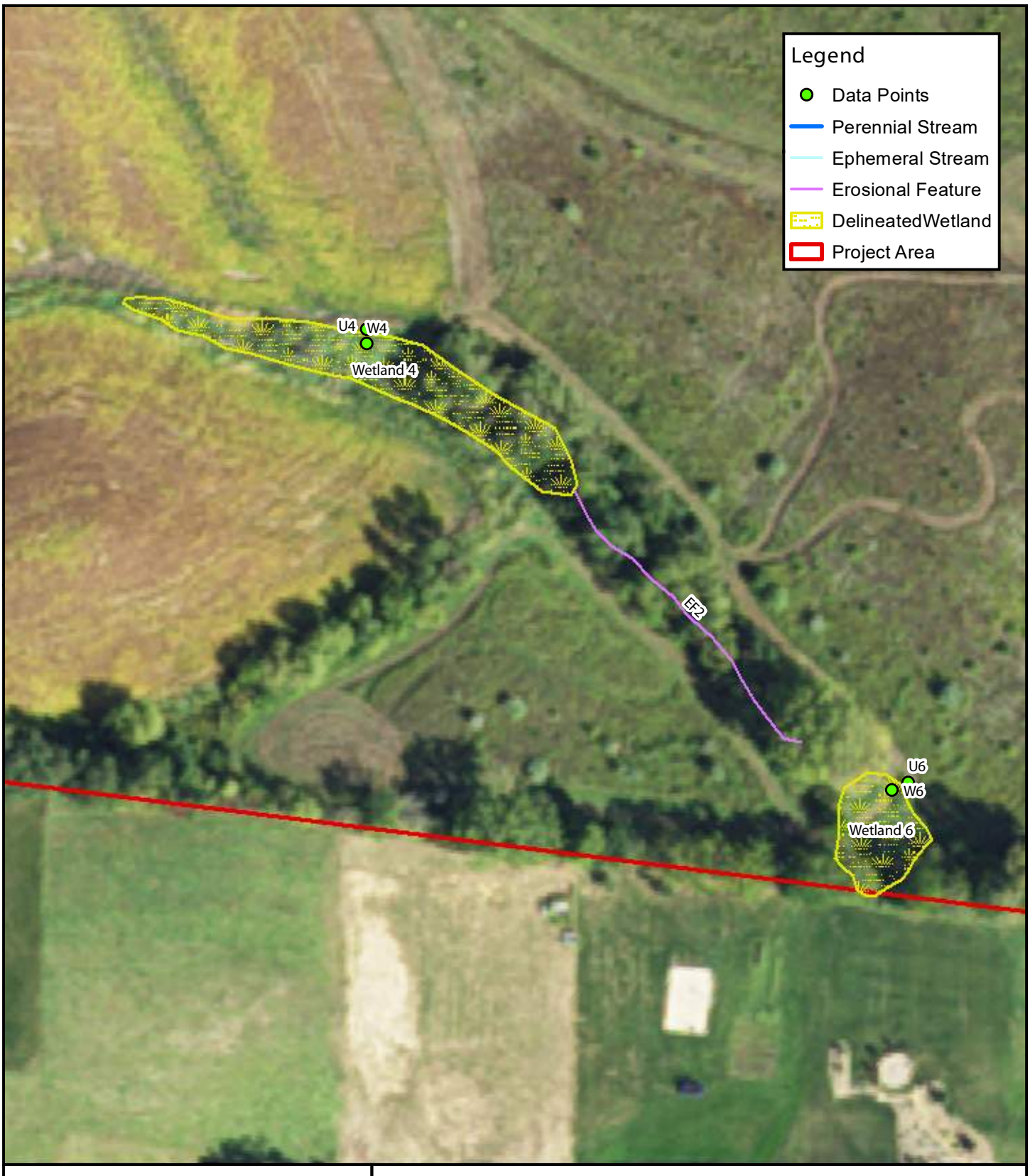
Figure 6a, Page 2 of 4: Wetland Delineation

Anderson Princeton Development | Princeton, IA | Project #3174430

0 50 100 Feet

N

Data Sources: ISU Iowa Geographic Map Server



SHIVEHATTERY
ARCHITECTURE + ENGINEERING

Figure 6a, Page 3 of 4: Wetland Delineation

Anderson Princeton Development | Princeton, IA | Project #3174430

0 50 100 Feet

N

Data Sources: ISU Iowa Geographic Map Server

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

Figure 6a, Page 4 of 4: Wetland Delineation

Anderson Princeton Development | Princeton, IA | Project #3174430

0 50 100 Feet

N

Data Sources: ISU Iowa Geographic Map Server

Appendix C – Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton, Iowa Sampling Date: 7/24/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: W1 (1)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 10, T 79 N, R 5 E

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

Slope (%): 0-2% Lat: 41.665592 Long: -90.360544 Datum: NAD 83

Soil Map Unit Name Timula NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	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. *Typha latifolia*	80	Yes	OBL
2. *Solidago gigantea*	70	Yes	FACW
3. *Asclepias syriaca*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	160 =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	80	x 1 =	80
FACW species	70	x 2 =	140
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals	160 (A)		260 (B)

Prevalence Index = B/A = 1.63

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 supportin 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: W1 (1)

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
0-4	10YR 3/2	100					Loamy/Clayey	
4-10	10YR 3/2	90	7.5YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 4/4	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** 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)
- ___ 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Preser 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** X **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/24/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: U1 (2)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 10, T 79 N, R 5 E

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

Slope (%): 2-5% Lat: 41.665576 Long: -90.360501 Datum: NAD 83

Soil Map Unit Name Timula NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
1. *Solidago gigantea*	95	Yes	FACW
2. *Monarda didyma*	50	Yes	UPL
3. *Bromus inermis*	40	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	185 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
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: 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	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	50	x 5 =	250
Column Totals:	185 (A)		600 (B)
Prevalence Index = B/A =			3.24

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supportin 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: U1 (2)

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
0-24	10YR 4/4	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/24/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: W2 (3)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 10, T 79 N, R 5 E

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

Slope (%): 0-2% Lat: 41.665147 Long: -90.360526 Datum: NAD 83

Soil Map Unit Name Timula NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. *Salix nigra*	60	Yes	OBL
2.			
3.			
4.			
5.			
	60 =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Phalaris arundinacea*	95	Yes	FACW
2. *Carex vulpinoidea*	70	Yes	FACW
3. *Asclepias syriaca*	20	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	185 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
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	60	x 1 =	60
FACW species	165	x 2 =	330
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	245 (A)		470 (B)
Prevalence Index = B/A =			1.92

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 supportin 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: W2 (3)

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
0-4	10YR 3/2	100					Loamy/Clayey	
4-10	10YR 3/2	90	7.5YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 4/4	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** 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)
- ___ 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Preser 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** X **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/24/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: U2 (4)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 10, T 79 N, R 5 E

Landform (hillside, terrace, etc.): Terrace of swale Local relief (concave, convex, none): Convex

Slope (%): 2-5% Lat: 41.665131 Long: -90.360466 Datum: NAD 83

Soil Map Unit Name Dockery NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	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. *Solidago gigantea*	95	Yes	FACW
2. *Monarda fistulosa*	50	Yes	FACU
3. *Bromus inermis*	40	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	185 =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: 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	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	185 (A)		550 (B)

Prevalence Index = B/A = 2.97

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 supportin 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: U2 (4)

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
0-24	10YR 4/4	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:
No indicators present.

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 Preser 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 indicators present.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: W3 (5)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 10, T 79 N, R 5 E

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

Slope (%): 0-2% Lat: 41.666135 Long: -90.355915 Datum: NAD 83

Soil Map Unit Name Fayette NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celtis occidentalis*	60	Yes	FAC
2. *Morus alba*	30	Yes	FAC
3.			
4.			
5.			
	90	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *Lonicera japonica*	70	Yes	FACU
2.			
3.			
4.			
5.			
	70	=Total Cover	
Herb Stratum (Plot size: ____)			
1. *Osmorhiza longistylis*	80	Yes	FACU
2. *Laportea canadensis*	60	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	140	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	90	x 3 =	270
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals	300 (A)		990 (B)

Prevalence Index = B/A = 3.30

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 supportin 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: W3 (5)

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
0-4	10YR 3/2	100					Loamy/Clayey	
4-10	10YR 4/2	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 4/2	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** 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)
- ___ 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Preser 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** X **No** ___

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

Remarks:

Adjacent to stream bed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: U3 (6)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 10, T 79 N, R 5 E

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

Slope (%): 5-10% Lat: 41.666105 Long: -90.355907 Datum: NAD 83

Soil Map Unit Name Timula NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	60	Yes	FACU
2. *Ulmus rubra*	40	Yes	FAC
3. *Celtis occidentalis*	20	No	FAC
4.			
5.			
	120	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera tatarica*	20	Yes	FACU
2.			
3.			
4.			
5.			
	20	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Toxicodendron radicans*	60	Yes	FAC
2. *Ribes rotundifolium*	50	Yes	UPL
3. *Lonicera tatarica*	20	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	130	=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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	120	x 3 =	360
FACU species	100	x 4 =	400
UPL species	50	x 5 =	250
Column Totals	270 (A)		1010 (B)

Prevalence Index = B/A = 3.74

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 supportin 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: U3 (6)

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
0-24	10YR 3/1	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: W4 (7)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 11, T 79 N, R 5 E

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

Slope (%): 0-2% Lat: 41.655945 Long: -90.349937 Datum: NAD 83

Soil Map Unit Name Fayette NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	30	Yes	OBL
2.			
3.			
4.			
5.			
	30 =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Phalaris arundinacea*	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
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	30	x 1 =	30
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		230 (B)

Prevalence Index = B/A = 1.77

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 supportin 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: W4 (7)

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 3/1	100					Loamy/Clayey	
2-8	10YR 3/1	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
8-24	10YR 4/2	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

x

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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Preser 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** X **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: U4 (8)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 11, T 79 N, R 5 E

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

Slope (%): 5-10% Lat: 41.655974 Long: -90.349937 Datum: NAD 83

Soil Map Unit Name Fayette NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	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. *Zea mays*	50	Yes	UPL
2. *Helianthus annuus*	40	Yes	FACU
3. *Setaria glauca*	40	Yes	FAC
4. *Pastinaca sativa*	30	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	160 =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: 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	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	40	x 4 =	160
UPL species	80	x 5 =	400
Column Totals	160 (A)		680 (B)

Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supportin 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: U4 (8)

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
0-24	10YR 3/4	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: W5 (9)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 11, T 79 N, R 5 E

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

Slope (%): 0-2% Lat: 41.658112 Long: -90.345360 Datum: NAD 83

Soil Map Unit Name Dockery NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus occidentalis*	80	Yes	FACW
2.			
3.			
4.			
5.			
	80 =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Phalaris arundinacea*	95	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
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	0	x 1 =	0
FACW species	175	x 2 =	350
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	175 (A)		350 (B)

Prevalence Index = B/A = 2.00

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 supportin 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: W5 (9)

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 3/2	100					Loamy/Clayey	
2-10	10YR 4/2	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 4/2	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** 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)
- ___ 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)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Preser 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** X **No** ___

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

Remarks:

Low-lying terrace adjacent to stream.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: U5 (10)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 11, T 79 N, R 5 E

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

Slope (%): 5-10% Lat: 41.658147 Long: -90.345338 Datum: NAD 83

Soil Map Unit Name Dockery NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juniperus virginiana*	60	Yes	FACU
2. *Quercus alba*	50	Yes	FACU
3.			
4.			
5.			
	110	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera tatarica*	70	Yes	FACU
2.			
3.			
4.			
5.			
	70	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Parthenocissus quinquefolia*	30	Yes	FACU
2. *Toxicodendron radicans*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60	=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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	210	x 4 =	840
UPL species	0	x 5 =	0
Column Totals	240 (A)		930 (B)

Prevalence Index = B/A = 3.88

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 supportin 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: U5 (10)

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
0-24	10YR 4/2	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: W6 (11)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 14, T 79 N, R 5 E

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

Slope (%): 0-2% Lat: 41.655014 Long: -90.348566 Datum: NAD 83

Soil Map Unit Name: Dockery NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
1. *Phalaris arundinacea*	95	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
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	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		190 (B)

Prevalence Index = B/A = 2.00

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: W6 (11)

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 2/1	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
8-24	10YR 2/1	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** 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)
- ___ 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)
- X 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): 8-24"

(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: Anderson Princeton Development City/County: Princeton Sampling Date: 7/25/2018

Applicant/Owner: Paul and Marijo Anderson State: IA Sampling Point: U6 (12)

Investigator(s): Wilson/Brockett Section, Township, Range: Sec 14, T 79 N, R 5 E

Landform (hillside, terrace, etc.): Sideslope of Drainage Swale Local relief (concave, convex, none): Convex

Slope (%): 2-5% Lat: 41.655029 Long: -90.348522 Datum: NAD 83

Soil Map Unit Name: Dockery NWI classification: None

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
1. *Monarda fistulosa*	60	Yes	FACU
2. *Phalaris arundinacea*	20	Yes	FACW
3. *Helianthus annuus*	20	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
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: 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	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	0	x 5 =	0
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.60

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: U6 (12)

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
0-24	10YR 3/3	100					Loamy/Clayey	

[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 (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** 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)
- X 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 ___ No X Depth (inches): _____

(includes capillary fringe)

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

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

Remarks:

Appendix: Plant Guide

Species Botanical Name	Common Name	Family	Acronym	Nativity	Physiognomy
Phalaris arundinacea	Reed Canary Grass	Poaceae	PHAARU	non-native	Grass, perennial

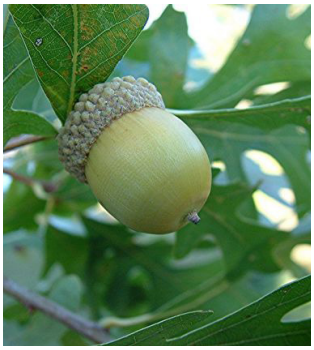

Solidago gigantea	Giant Goldenrod	Asteraceae	SOLGIG	native	Forb, perennial


Lonicera tatarica	Honeysuckle	Caprifoliaceae	LONTAT	non-native	Shrub




Quercus alba	White Oak	Fagaceae	QUEALB	native	Tree





Species Botanical Name	Common Name	Family	Acronym	Native	Physiognomy
Toxicodendron radicans negundo	Poison Ivy	Anacardiaceae	TOXRAN	native	Vine, perennial




Salix nigra	Black Willow	Salicaceae	SALNIG	native	Tree

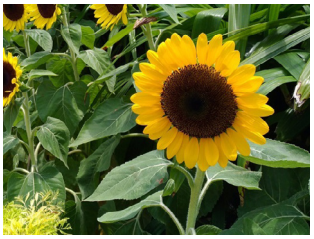


Bromus inermis	Smooth Brome Brome Grass	Poaceae	BROINE	non-native	Grass, perennial


Celtis occidentalis	Common Hackberrry	Ulmaceae	CELOCC	native	Tree




Species Botanical Name	Common Name	Family	Acronym	Native	Physiognomy
Helianthus annuus	Sunflower Common	Asteraceae	HELANN	native	Forb, annual

Asclepias syriaca	Common Milkweed	Asclepiadaceae	ASCSYR	native	Forb,perennial



Platanus occidentalis	American Sycamore	Platanaceae	PLAOCC	native	Tree




Typha latifolia	Broadleaf Cattail	Typhaceae	TYPLAT	native	Forb, perennial


Species Botanical Name	Common Name	Family	Acronym	Native	Physiognomy
Osmorhiza longistylis	Long Sweet-Cicely Sweet Root, Anise	Apiaceae	OSMLON	native	Forb, perennial



Carex vulpinoidea	American Fox Sedge	Cyperaceae	CXVULP	native	Sedge, perennial



Laportea canadensis	Wood Nettle Canadian Nettle, Stinging nettle	Urticaceae	LAPCAN	native	Forb, perennial



Juniperus virginiana	Red Cedar	Cupressaceae	JUNVIR	native	Tree



Species Botanical Name	Common Name	Family	Acronym	Native	Physiognomy
Zea mays	Corn	Poaceae	ZEAMAY	non-native	Grass,annual


Ribes americanum	Wild Black Currant	Saxifragaceae	RIBAME	native	Shrub,



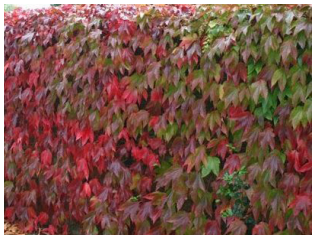
Monarda didyma	Oswego Tea	Lamiaceae	MONDID	non-native	Forb, perennial


Setaria glauca	Pearl Millet, Millet Green Bristlegrass	Poaceae	SETGLA	non-native	Grass, annual


Species Botanical Name	Common Name	Family	Acronym	Nativity	Physiognomy
Ulmus rubra	Slippery Elm Red Elm	Ulmaceae	ULMRUB	native	Tree



Parthenocissus quinquefolia	Virginia Creeper	Vitaceae	PARQUI	native	Vine,perennial

Morus alba	White Mulberry	Moraceae	MORALB	non-native	Tree



Pastinaca sativa	Parsnip	Apiaceae	PASSAT	non-native	Forb, perennial


Species Botanical Name	Common Name	Family	Acronym	Nativity	Physiognomy
Monarda fistulosa	Wild Bergamont Horsemint	Lamiaceae	MONFIS	native	Forb, perennial