Appendix F
Wetland Delineation Report

Red Rock Solar, LLC
Docket No. 19-620
October 2020

Environmental Consulting & Technology, Inc.
161 East Aurora Road, Northfield OH, 44067

Wetland and Watercourse Delineation Report

Red Rock Solar
Cottonwood County, Minnesota

Red Rock Solar, LLC
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ECT No. 190660-0100

Document Review

The dual signatory process is an integral part of Environmental Consulting & Technology, Inc.'s (ECT's) Document Review Policy No. 9.03. All ECT documents undergo technical/peer review prior to dispatching these documents to any outside entity.

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List of Acronyms and Abbreviations

CWA	Clean Water Act
ECT	Environmental Consulting & Technology, Inc.
FAC	Facultative
FACU	facultative upland
FACW	facultative wetland
FEMA	Federal Emergency Management Agency
FIRM	Federal Insurance Rate Map
GPS	global positioning system
HUC	Hydrologic Unit Code
LGU	Local Government Unit
MBWSR	Minnesota Board of Water & Soil Resources
MNCWG	Minnesota Climatology Working Group
MNDNR	Minnesota Division of Natural Resources
MPCA	Minnesota Pollution Control Agency
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWP	USACE Nationwide Permit
NWPR	Navigable Waters Protection Rule
OBL	obligate wetland
OHWM	ordinary high water mark
Project	Red Rock Solar Project
PWI	Public Waters Inventory
UPL	obligate upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCA	Wetland Conservation Act
WQC	Water Quality Certification
WOTUS	Waters of the United States

Executive Summary

Red Rock Solar, LLC contracted Environmental Consulting & Technology, Inc. (ECT), to perform a wetland and watercourse delineation for the Red Rock Solar Project (Project). The proposed Project covers an area of approximately 792 acres located in Midway Township, Cottonwood County, Minnesota. The Project is also located within the Watonwan River watershed (Hydrologic Unit Code [HUC] 07020010).

The Project is located approximately four (4) miles northwest of Butterfield, four (4) miles northeast of Mountain Lake, and 2.5 miles southwest of Darfur, Minnesota (**Site Location Map in Appendix A**). The Project primarily has land cover of active agricultural fields and rural residential and agricultural developments. ECT conducted a field reconnaissance to identify, delineate, and characterize wetlands and watercourse features and assess their regulatory status on May 11 through 13, 2020.

Under Section 404 of the 1972 Clean Water Act (CWA), Waters of the United States (WOTUS) are regulated by the U.S. Army Corps of Engineers (USACE). These can include bodies of water such as lakes, ponds, rivers, tributaries, and wetlands. WOTUS are currently defined by the 1986/1988 definition and applicable guidance, court decisions, and agency practices. However, the Navigable Waters Protection Rule (NWPR) definition of WOTUS will become effective on June 22, 2020. Only USACE has the authority to verify jurisdiction and boundaries for WOTUS within Minnesota.

In Minnesota, surface waters are additionally regulated by the Minnesota Pollution Control Agency (MPCA), which administers Section 401 of the Clean Water Act; the Minnesota Department of Natural Resources (MNDNR), which administers the Public Waters Permit Program; and the Minnesota Board of Water and Soil Resources (MBWSR) and Local Government Units (LGU), which administer the state Wetland Conservation Act. The Cottonwood County Soil and Water Conservation District serves as the LGU for all of Cottonwood County. Activities that impact federal or state regulated wetlands, inland lakes and watercourses, floodplains, or the Great Lakes must be authorized by the appropriate regulatory agencies prior to Project activities taking place.

One (1) potentially jurisdictional wetland and one (1) potentially jurisdictional watercourse were identified within the Project area. ECT evaluated on-site water resources for potential jurisdictional status per both the Navigable Waters Protection Rule and the 1986/1988 WOTUS definition and associated judicial decisions and regulatory guidance. The identification of wetland and watercourse features herein is based on the condition of the Project at the time of the investigation. All wetland and watercourse boundaries and potential jurisdictional statuses are considered preliminary until confirmed by USACE during a jurisdictional determination.

1.0 Introduction

Red Rock Solar, LLC contracted Environmental Consulting & Technology, Inc. (ECT), to perform a wetland and watercourse delineation for the approximately 792-acre Red Rock Solar Project (Project) located in Midway Township, Cottonwood County, Minnesota. The Project is located approximately four (4) miles northwest of Butterfield, four (4) miles northeast of Mountain Lake, and 2.5 miles southwest of Darfur, Minnesota (**Site Location Map, Appendix A: Figure 1**) and is within Watonwan River watershed (Hydrologic Unit Code [HUC] 07020010). The Project area is dominated by active agricultural fields with areas of riparian corridors and rural residential properties interspersed throughout.

Under the 1972 Clean Water Act (CWA), Waters of the United States (WOTUS) are regulated by the U.S. Army Corps of Engineers (USACE) and are considered jurisdictional. These can include bodies of water such as lakes, ponds, rivers, tributaries, and wetlands. In Minnesota, surface waters are additionally regulated by the Minnesota Pollution Control Agency (MPCA), which administers Section 401 of the Clean Water Act; the Minnesota Department of Natural Resources(MNDNR), which administers the Public Waters Permit Program; and the Minnesota Board of Water and Soil Resources (MBWSR), which administers the state Wetland Conservation Act. In Minnesota, WOTUS are currently defined by the 1986/1988 regulatory definition and applicable guidance and judicial decisions. However, the Navigable Waters Protection Rule definition of WOTUS will become effective on June 22, 2020. Activities, including dredging or filling, that impact federal- or state-regulated wetlands, watercourses, or open water areas must be authorized by the appropriate regulatory agencies prior to project activities taking place. This report summarizes the surface water features identified within the Project boundary.

2.0 Preliminary Desktop Review

As part of standard Minnesota delineation practice, initial desktop wetland delineations were completed by ECT to identify the potential presence of wetlands and watercourses within the Project area. The results of the desktop reviews were used to focus the field delineation, particularly in agricultural areas. Methodologies for determining potential wetland areas followed MBWSR's/USACE's *Guidance for Offsite Hydrology/Wetland Determinations* (USACE and MBWSR 2016). Desktop assessments utilized public database resources and information including aerial photographs across multiple years, U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) soil survey maps, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps, MNDNR Minnesota Wetland Inventory, MNDNR Public Waters Inventory (PWI) Maps, U.S. Geological Survey (USGS) topographic maps, USGS National Hydrography Dataset (NHD), and Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs).

ECT identified nine (9) potential wetland locations and one (1) potential watercourse feature requiring field verification. **Table 1** provides a summary of the aerial imagery review results from ECT's desktop delineations. A map depicting the results of both desktop reviews is included in **Appendix A: Figure 2.** Results of the on-site visit are described further below in *Section 3.0*.

Table 1. Aerial Imagery Review Results

Signature ID	1992	2003	2004	2006	2008	2009	2010	2012	2015	% Years with Wetland Hydrology Signature	Hydric Soils	NWI
Wetland 1	SS	CS/NV	CS/NV	CS	CS	CS/NV	NV	CS/NV	CS/NV	56	Yes	No
Wetland 2	SS	CS/NV	NV	CS/NC	CS/NC	DO	DO	CS	NV	77	Yes	Yes
Wetland 3	SS	CS/NC	NV	CS/NC	CS/NV /NC	NV	CS /NC	CS/NC	CS	77	Yes	No
Wetland 4	SS	NV/NC	NV	NC	CS/NC	NV/NC	NV/NC	CS/NC	NV	77	Yes	No
Wetland 5	SS	NC	WS	WS	WS	WS	WS	WS	WS	100	Yes	Yes
Wetland 6	SS	NV	CS	SS	NV	SS	SS	NV	NV	55	Yes	No
Wetland 7	SS	NV	CS	SS	NV/NC	NV/NC	SS	SS	NV/NC	77	Yes	No
Wetland 8	SS	CS	NV	NV	CS	NV	NV	NV	NV	30	Yes	No
Wetland 9	SS	CS	NV	NV	CS	NV	SS	AP/SS	CS	67	Yes	No

SS- Soil Wetness Signature
NC- No Crops
CS- Crop Stress
DO- Drowned Out
AP- Altered Pattern
WS- Wetland Signature
NV- Normal Vegetation

Source: (ECT 2020, USACE and MBWSR 2016)

2.1 Historical Climate Data

ECT reviewed climate data for the three months prior to the date of each aerial image reviewed as part of the desktop preview to determine precipitation conditions as above or below average precipitation rates as this may alter the presence of wetland signatures. For example, years with drier conditions may have fewer identified areas of wetland signatures, while years of wetter conditions will display a greater number of areas when compared to photography taken during normal precipitation years. ECT determined precipitation amounts using Minnesota Climatology Working Group (MNCWG) data, which provides an online calculator for precipitation scores. Precipitation scores can be assigned one of three categories: scores of 6-9 are considered 'Dry', meaning that precipitation levels are below average; scores of 10-14 are considered 'Normal', meaning that precipitation levels are within range of typical amounts; and scores of 15 to 18 are considered 'Wet', meaning that precipitation levels exceed normal averages.

The climate at the time of most aerial images was considered Normal. Scoring for the data of each aerial image is provided in **Table 2** below. Copies of MNCWG Precipitation Worksheets for historic aerial images are provided in **Appendix B**.

Table 2. Aerial Imagery Precipitation Scores

Date of Photo	Source of Photo	MNCWG Score	Conditions
April 26, 1992	Google Earth	12	Normal
May 31, 2003	Google Earth	12	Normal
August 2, 2004	Google Earth	14	Normal
May 31, 2006	Google Earth	14	Normal
May 21. 2008	Google Earth	11	Normal
June 2, 2009	Google Earth	7	Dry
April 23, 2011	Google Earth	15	Wet
October 12, 2012	Google Earth	6	Dry
July 22, 2015	Google Earth	13	Normal

Source: (Minnesota State Climatology Office 2020)

2.2 U.S. Geological Survey Topographic Map

The USGS Comfrey, Darfur, Mountain Lake, and Butterfield 7.5-minute quadrangle maps (2019) depict the elevation within the Project area at range 1,180 to 1,226 feet above mean sea level (**USGS Topographic Map, Appendix A: Figure 3**, (USGS 2019b; 2019c; 2019d; 2019a). The USGS map depicts two (2) watercourses and one (1) open water body occurring within the Project

area. The USGS map also depicts three (3) wetland areas within northeastern and southern portions of the Project area.

2.3 NWI, PWI and NHD Map

The USFWS National Wetlands Inventory (NWI) mapping database, MNDNR Minnesota Wetland Inventory, and the USGS National Hydrography Dataset (NHD) were reviewed to determine the likely presence, location, size, and type of water resources that may be in the Project area (USFWS 2020; MNDNR 2017; USGS 2020). USFWS generates NWI maps using high altitude imagery. The MNDNR generates the Minnesota Wetland Inventory through an update of the NWI using modern technology and imagery. These maps were used for preliminary analysis only, as these maps may not accurately depict the extent or existence of wetland systems in a specific area, nor do these maps always correctly identify the types of wetlands present. Similarly, the USGS has developed the NHD that depicts features such as rivers, watercourses, and lakes based on available topographic maps. However, some topographic maps may not reflect the current topography of an area. Verification of all water resources within the Project area is necessary through on-site visits.

Public waters and public wetland waters are designated on Public Waters Inventory (PWI) maps developed by MNDNR. Public waters may include such features as meandered lakes, water basins, watercourses with a drainage area greater than two square miles, waters of the state determined to be navigable by a court of competent jurisdiction, and trout streams, per Minn. Stat. § 103G.005, subd. 15. Public waters and wetlands are defined in Minn. Stat. § 103G.005, subd. 15a to include inland shallow and fresh marshes and inland fresh open waters that are 10 or more acres in unincorporated areas and 2.5 or more acres in incorporated areas.

Review of NWI and NHD data indicate that two (2) unnamed watercourses flow through the Project area in the northeastern and southwestern portions of the Project. PWI did not indicate any public waters within the Project area, although the unnamed watercourse in the northeast becomes a public water east of Un Road, adjacent to the Project area. Additionally, NWI data and the NWI Update for Minnesota indicate two (2) wetlands within the Project area. One (1) wetland is located north of 330th Street along the southeastern Project boundary. The second wetland is located south of 330th Street along the eastern Project boundary and corresponds with the open water on the USGS topographic maps. No public water wetlands are mapped within the Project area (**Appendix A: Figures 4 and 5;** (USFWS 2020; USGS 2020; MNDNR 2017; 2018).

2.4 USDA-NRCS Soils Map

ECT reviewed the USDA-NRCS soil data for hydric soils that may be present within the Project boundary. Hydric soils form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil (USDA-NRCS 2017). A total of eight (8) soil map types are mapped within the Project boundary, five (5) of which are hydric soils: Mayer clay loam, depressional, 0 to 1 percent slopes; Canisteo clay loam, 0 to 2 percent slopes; Webster clay loam, 0 to 2 percent slopes; Glencoe clay loam, 0 to 1 percent slopes; and Nicollet clay loam, 1 to 3 percent slopes. **Appendix A: Figure 6**, presents a soils map showing the soil types and their boundaries within the Project area along with the total acreage of each soil type within the Project area.

2.5 FEMA Floodplain Map

The MBWSR regulates development in Federal Emergency Management Agency (FEMA) identified floodways and floodplains, also called special flood hazard areas, under the Flood Control Act and Floodplain Management Rule. FEMA's Federal Insurance Rate Maps (FIRM's) delineate these special flood hazard areas and the risk premium zones applicable to the community (FEMA 2002). A review of the FIRMs indicated that no floodplains or floodways occur within the Project area. (FEMA Floodplain Map, **Appendix A: Figure 7;**(FEMA 2020).

3.0 Field Methodology

On May 11 through 13, 2020, ECT conducted field investigations to confirm, delineate, characterize, and determine the potential regulatory states of the water resources identified during the desktop assessment. ECT additionally reviewed the entirety of the Project area for potential wetland and watercourse features that may have not been apparent during the wetland desktop reviews.

Wetlands within the Project area were delineated following the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Army Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010) guidelines. The presence of wetlands is determined based on three parameters: the presence of hydric vegetation (hydrophytes), hydric soils, and wetland hydrology. Potentially jurisdictional wetland boundaries were mapped using a sub-meter GEO7X® series Trimble® global positioning system (GPS) unit and flagged in the field. Wetland data points and corresponding upland points were also mapped with the GEO7X® series Trimble® GPS unit. USACE regional determination forms were completed for each wetland and its corresponding upland point.

Vegetation was identified by flowers, leaves, bark, twigs, stems, reproductive structures, and/or persistent remains from the preceding growing season. The wetland indicator status for vegetation noted during the evaluation was obtained from the USACE Midwest 2016 Regional Wetland Plant List (Lichvar et al. 2016) and 2018 Update to the National Wetland Plant List (U.S. Army Corps of Engineers 2020). Soil was evaluated by digging test pits sufficient to document hydric indicators, up to 20 inches deep. Soil conditions were evaluated using criteria established by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Field Indicators of Hydric Soils in the United States (USDA-NRCS 2018) and soil colors were evaluated using a Munsell® color chart. Hydrology was evaluated through direct observation of primary indicators (e.g., standing water and/or saturated soil) and indirectly through observation of secondary hydrology indications.

Potentially jurisdictional watercourses were identified based on the presence of morphological features such as a defined bed and banks, presence of an ordinary high water mark (OHWM), and evidence of water flow. Watercourses were separated into three flow regimes: perennial,

intermittent, and ephemeral. Perennial watercourses are classified as having regular water flow that can be seen year-round. Intermittent watercourses flow during certain times of the year; however, during dry periods they may not have any flowing surface water. Ephemeral watercourses have brief water flow typically exhibited during periods of rainfall in the immediate vicinity. Watercourses were also mapped using a sub-meter GEO7X® series Trimble® GPS unit.

3.1 Current Precipitation Data

Because recent precipitation events can influence wetland identification by altering the presence of hydrology in the field, precipitation conditions three months prior to the time of the field visit were compared to long term precipitation averages.

Due to missing data for 2020 within the MNCWG system, a Wetland Climate Table (WETS table) was completed following guidelines of the WETS analysis as described in *Chapter 19: Hydrology Tool for Wetland Determination of the USDA-NRCS Engineering Field Handbook* (USDA-NRCS 1997). Conditions prior to May 2020 were Normal per the WETS analysis. The completed WETS table and supporting precipitation data for the climate at the time of the field assessment are provided in **Appendix B**.

4.0 Results

4.1 Wetlands and Watercourses

4.1.1 Wetlands

During the site reconnaissance, one (1) wetland (WL-1) was identified within the Project area as shown on the *Wetland and Watercourse Delineation Maps* (**Appendix A: Figure 8**). The wetland corresponds to wetland area 5 as identified during the preliminary desktop delineation (**Appendix A: Figure 2**). The remaining eight (8) potential wetlands identified during the desktop review did not meet USACE criteria to be considered a wetland. USACE Midwest Region wetland/upland data sheets are provided in **Appendix C**. The potentially jurisdictional wetlands identified had a predominance of hydrophytic vegetation, soils that exhibited reducing conditions, and observed hydrological characteristics.

For the wetland identified during field delineation, sufficient reducing characteristics were observed within the upper 10 inches of soils per guidelines set forth by the USDA-NRCS Field Indicators of Hydric Soils in the United States (USDA-NRCS 2018). Soil indicators found within Wetland 1 included depleted matrix (F3) and redox dark surface (F6).

Hydrology indicators found within the identified wetland included surface water (A1), high water table (A2), saturation (A3), geomorphic position (D2), and FAC-neutral test (D5).

Typical vegetative conditions noted in wetland within the Project area are described in the following paragraphs. The scientific names and wetland indicator status of vegetation (obligate wetland, OBL; facultative wetland, FACW; facultative, FAC; facultative upland, FACU; and obligate upland, UPL) noted during the delineation follow the common name the first time each plant species is referenced. **Appendix D** presents copies of site photographs depicting conditions at the time of the site investigation. **Table 3** provides details on the identified wetland within the Project area.

WL-1 contained areas of forested and emergent vegetation communities. Forested areas were dominated by eastern cottonwood (*Populus deltoides*, FAC), shining willow (*Salix lucida*, FACW), and saltmarsh club-rush (*Schoenoplectus maritimus*, OBL). Emergent areas were dominated by saltmarsh club-rush and narrow leaf cattail (*Typha angustifolia*, OBL). WL-1 appears to be

hydrologically isolated per both the 1986/1988 definition of WOTUS and the Navigable Waters Protection Rule and is therefore unlikely to be subject to regulation under the Clean Water Act. However, this wetland likely falls under the regulation of MBWSR and the LGU per Minnesota's WCA. The LGU for Cottonwood County is the county Soil and Water Conservation District.

No wetland community identified within the Project area exhibited fen vegetation community types.

Table 3. Wetland Summary Data: Wetland Type and Potential Regulatory Status

Wetland ID	Lat/Long	Cowardin Classification	Circular 39 Classification	Eggers & Reed Classification	1986/1988 Potential Regulatory Status	NWPR[5] Potential Regulatory Status	Acres
WL-1	44.004489°, -94.869896°	PEM[1] / PFO[2]	Type 3[3] / Type 1[4]	Shallow Marsh / Seasonally Flooded Basin	Non-federal Regulated by MBWSR/LGU	Non-federal Regulated by MBWSR/LGU	3.87

Source: ECT, 2020.

[1] Palustrine emergent
[2] Palustrine forested
[3] Shallow Marsh
[4] Seasonally Flooded Basin or Floodplain
[5] Navigable Waters Protection Rule

4.1.2 Watercourses

The field reconnaissance completed by ECT confirmed the potential watercourse identified during desktop review in the southern portion of the Project area, as shown on the *Wetland and Watercourse Delineation Maps* as WC-1 (**Appendix A: Figure 8**). The potentially jurisdictional watercourse exhibited morphological features such as a defined bed and banks, OHWM, and evidence of water flow. **Appendix D** presents copies of photographs depicting the watercourse. **Table 4** provides the watercourse data. Watercourse WC-1 is an unnamed tributary that drains southeast through the Project and discharges to Butterfield Creek approximately 2.5 miles southeast of the Project area. The tributary is not a mapped MNDNR Public Waters Watercourse.

Table 4. Watercourse Summary Data: Flow Regime and Potential Regulatory Status

Watercourse ID	Associated Waterway	Flow Regime	1986/1988 Potential Regulatory Status	NWPR Potential Regulatory Status	Ordinary High Water Mark Width (ft)	Linear Feet
WC-1	-	Perennial	Regulated-USACE	Regulated-USACE	13	1,538

Source: ECT, 2020.

4.1.3 Drainage Ditches

No potentially jurisdictional drainage ditches were identified during field delineation of the Project area.

4.2 Upland Conditions

Upland areas throughout the majority of the site were dominated by agricultural fields. Uplands in agricultural fields were planted within corn (*Zea mays*, UPL) and soy (*Glycine max*, not rated).

5.0 Conclusions

ECT conducted a wetland and watercourse delineation on a 792-acre site for the Red Rock Solar Project located within Cottonwood County, Minnesota. One (1) potentially jurisdictional wetland totaling 3.87 acres and one (1) potentially jurisdictional perennial watercourse totaling 1,538 linear feet were identified within the Project area. Project impacts to potentially regulated features and required permitting will be determined upon final project design.

Jurisdictional determinations are performed by the USACE. Preliminary regulatory determinations provided in this report are based on ECT's experience with wetland and watercourse permitting within Minnesota. The USACE St. Paul District Office should be contacted to perform an official jurisdictional determination for all water features identified within the Project area. Wetlands that do not fall under USACE jurisdiction are regulated by the LGU under the WCA. It is unlawful to deposit fill or dredge material, drain surface water, or construct a structure in a regulated water resource without a permit from USACE and/or the Cottonwood County Soil and Water Conservation District, which serves as the LGU and implements the WCA within Cottonwood County.

ECT's evaluation was performed in accordance with generally accepted procedures for conducting wetland and watercourse evaluations in Minnesota. ECT's conclusion reflects our professional opinion based on conditions present at the time of the evaluation.

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Common Wetland Definitions

Perennial Watercourse: year-round streams, typically have water year-round. Water comes from upstream tributaries or headwaters as well as precipitation

Intermittent Watercourse: have water intermittently throughout the year when upstream waters or groundwater provide enough stream flow. May not have flowing surface water during dry times of the year

100-year flood: A flood with a magnitude that has a 1% chance of occurring or being exceeded in any given year.

Floodplain: The area of land adjoining a river or steam that will be inundated by a 100-year flood.

Hydric soil: Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

Hydrophytes: Plant species that grows in water or on a substrate that is at least periodically deficient in oxygen because of excessive water content; plants typically found in wet habitats.

Palustrine Emergent Wetland (PEM): Vegetative classification of a wetland system based on the dominant vegetation, consisting of rooted herbaceous (non-woody) plant species that have parts extending above a water surface with at least 30% aerial coverage

Palustrine Scrub-Shrub Wetland (PSS): Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants less than 3 inches in diameter but greater than 3 ft but less than 20 ft in height OR where trees and shrubs combined have an aerial coverage no greater than 30%.

Palustrine Forested Wetland (PFO): Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants 3 inches in diameter or greater regardless of height with at least 30% aerial coverage.

Public Waters: Public waters may include such features as meandered lakes, water basins, watercourses with a drainage area greater than two square miles, waters of the state determined to be navigable by a court of competent jurisdiction, and trout streams, per Minn. Stat. § 103G.005, subd. 15. Public waters wetlands are defined in Minn. Stat. § 103G.005, subd. 15a to include inland shallow and fresh marshes and inland fresh open waters that are 10 or more acres in unincorporated areas and 2.5 or more acres in incorporated areas.

Traditional Navigable Water: water body that is presently used or has been previously used in the past for transport by interstate or foreign commerce vessels

Wetland: Defined by USACE as "…areas that are inundated or saturated by surface or ground water…at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in soil conditions."

Wetland hydrology: Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.

Wetland Indicator Status:

OBL: Obligate wetland plant that occurs almost always, 99% of the time, in wetlands under natural conditions, but which rarely occur in non-wetlands.

FACW: Facultative wetland plant that occurs usually, 67% to 99% of the time, in wetlands, but also occurs 1% to 33% of the time in non-wetlands.

FAC: Facultative plant that occurs in both wetlands and non-wetlands 33% to 67% of the time.

FACU: Plant that occurs sometimes, 1% to 33% of the time, in wetlands but occurs more often, 67% to 99% of the time, in non-wetlands.

UPL: Upland plant that occurs very rarely in wetlands, less than 1% of the time

Appendix A
Background & Delineation Maps

Figure 1 Site Location Map
Figure 2 Aerial Imagery Review Map
Figure 3 USGS Topographic Map
Figure 4 PWI & NHD Features Map
Figure 5 Minnesota & National Wetland Inventories Map
Figure 6 NRCS Soils Map
Figure 7 FEMA Floodplain Map
Figure 8 Wetland and Watercourse Delineation Maps

0 0.25 0.5 Miles

N

Selma Township

Adrian Township

Midway Township

Butterfield Township

North Dakota

Minnesota

Wisconsin

South Dakota

Iowa

Watonwan River

1 8 23 124 11 116 5 3

LEGEND

Project Boundary (± 792 Ac.)

Township

FIGURE 1.

SITE LOCATION MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: ESRI StreetMap, 2018; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Location_2020415.mxd

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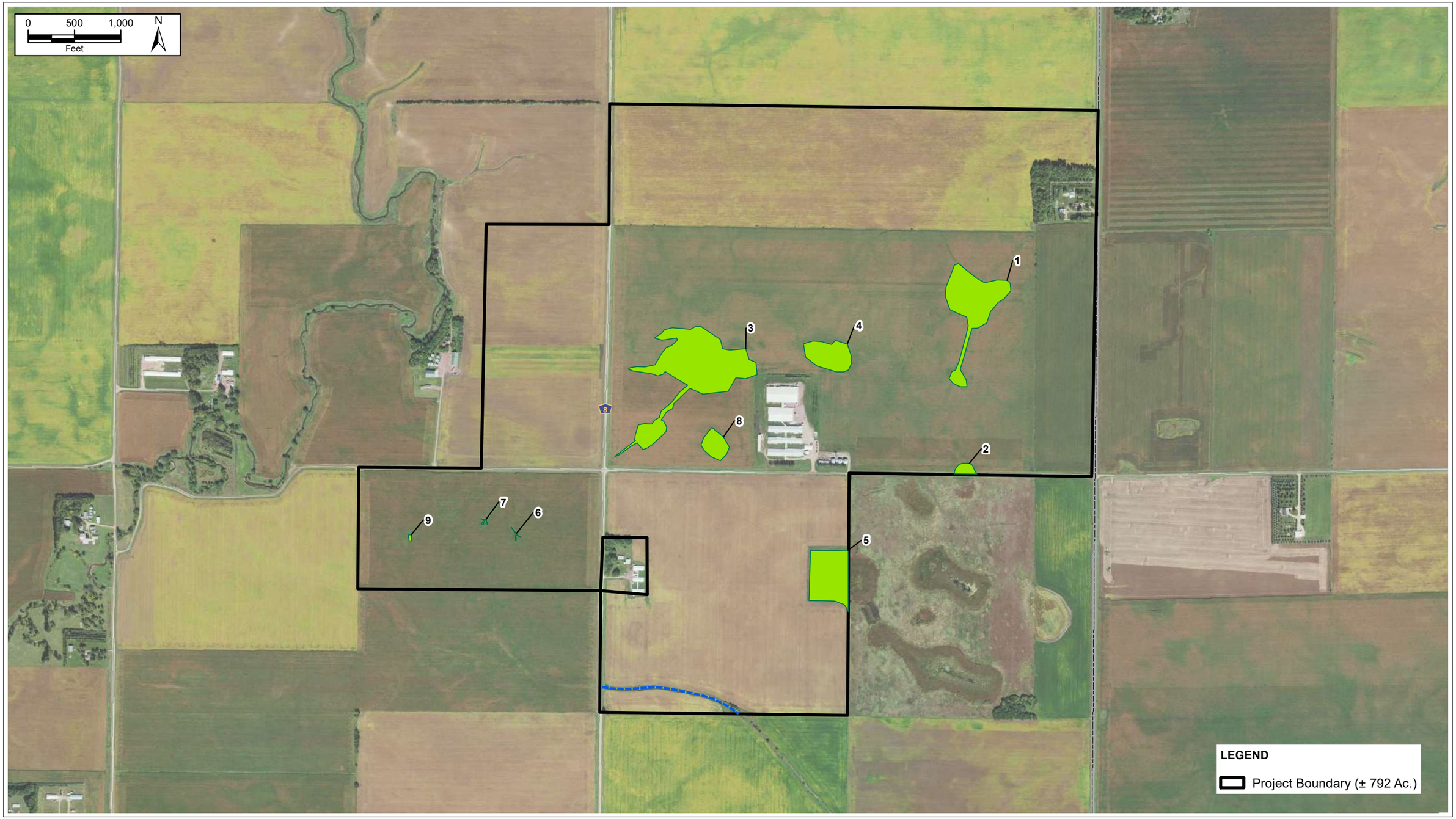

FIGURE 2.
AERIAL IMAGERY REVIEW MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: MN DOT, 2017; HDR, 2019; ECT, 2020.

Wetland Desktop Delineation by ECT*

Streams Desktop Delineation by ECT*

Streams Desktop Delineation by HDR

Wetland Desktop Delineation by HDR

*Note: Signature ID, referenced in Report Table 1.

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Aerial_Review_20200415.mxd

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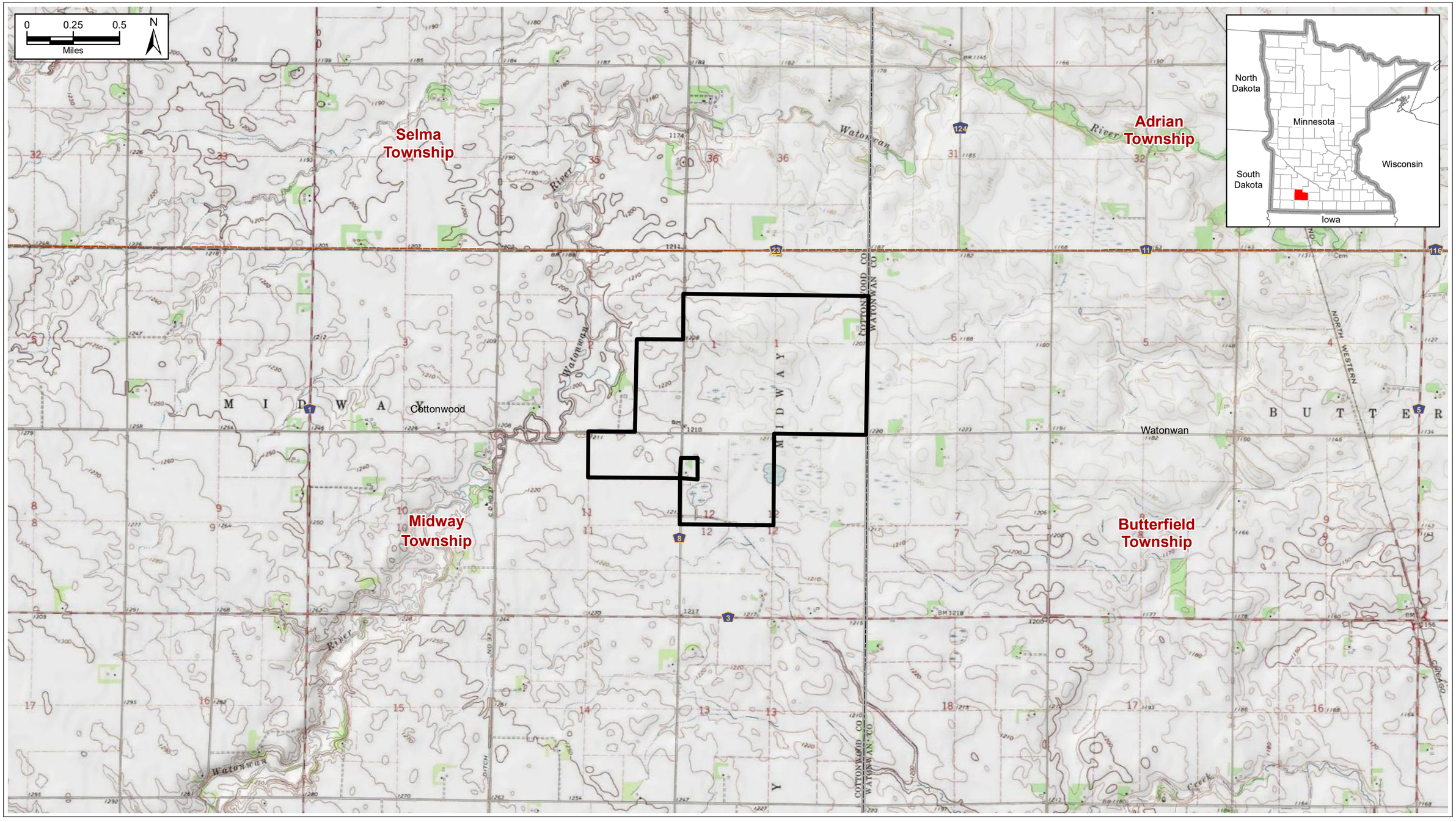

FIGURE 3.

USGS TOPOGRAPHIC MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: USGS; ECT, 2020.

Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Topo_20200415.mxd

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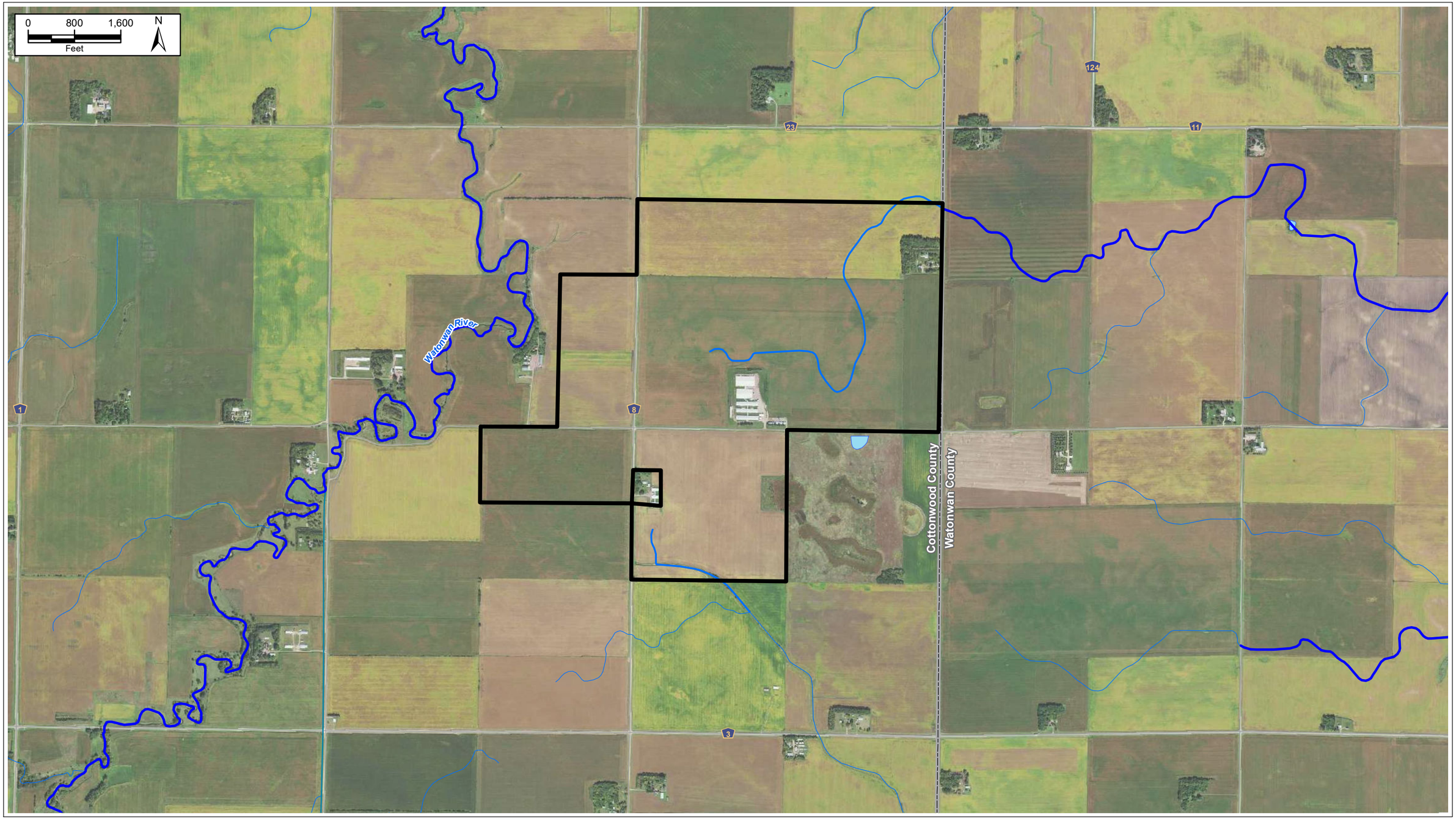

FIGURE 4.
PWI & NHD FEATURES MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: USDA 2017 Imagery; USGS, 2019; MN DNR, 2020; ECT, 2020.

Project Boundary (± 792 Ac.)
Waterbodies (NHD)

Watercourses (NHD)
Stream / River

Public Watercourses
Public Water Watercourse

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_WaterResources_20200415.mxd

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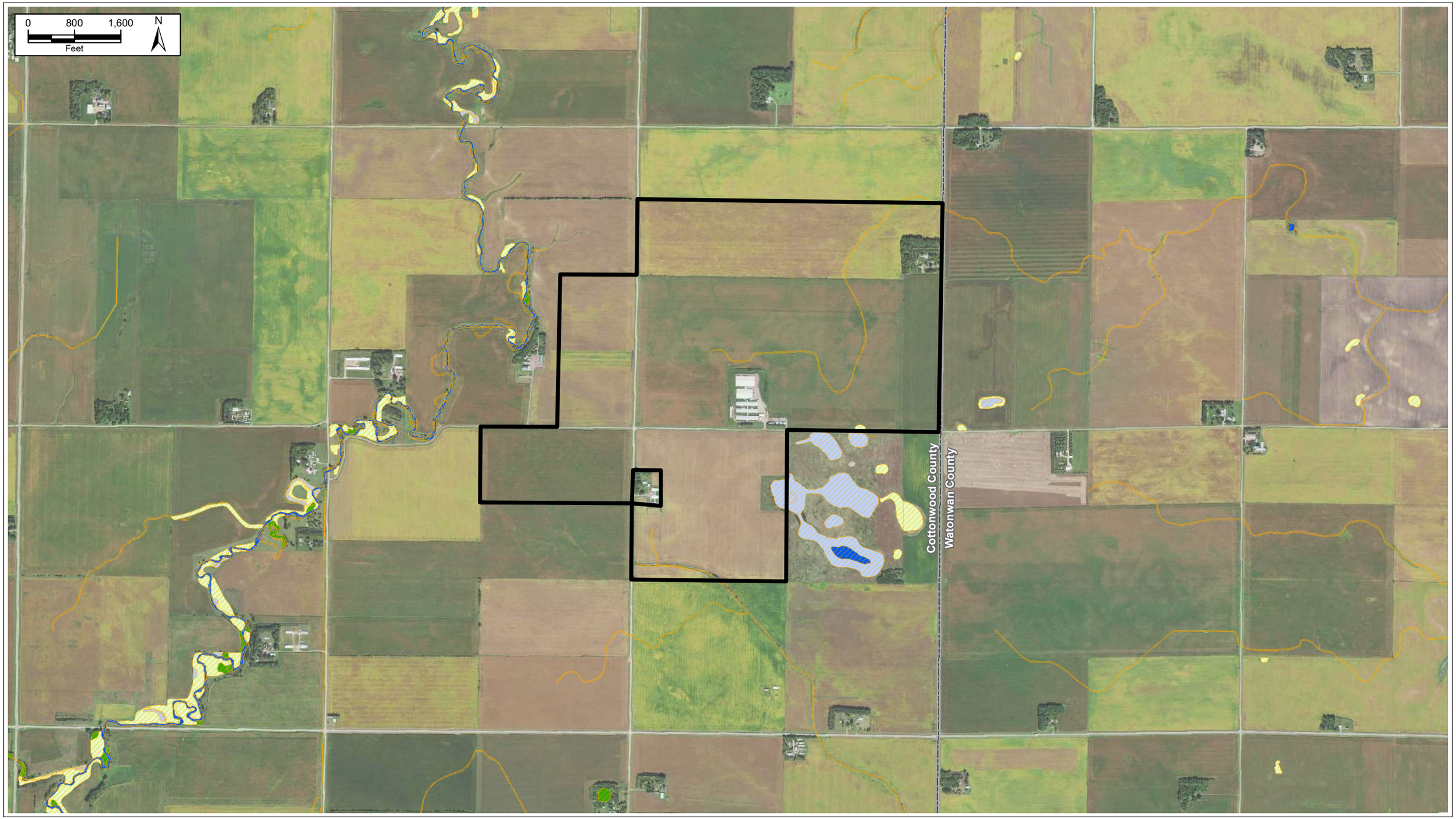

FIGURE 5.
MINNESOTA & NATIONAL WETLAND INVENTORIES
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: USDA 2017 Imagery; USFWS, 2019; MN DNR, 2020; ECT, 2020.

Project Boundary (± 792 Ac.)
Wetlands (NWI)

MN Wetland Inventory
Seasonally Flooded/Saturated Emergent Wetland
Shallow Marsh
Non-Vegetated Aquatic Community
Hardwood Wetland

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_MN_WetlandInventory_20200415.mxd

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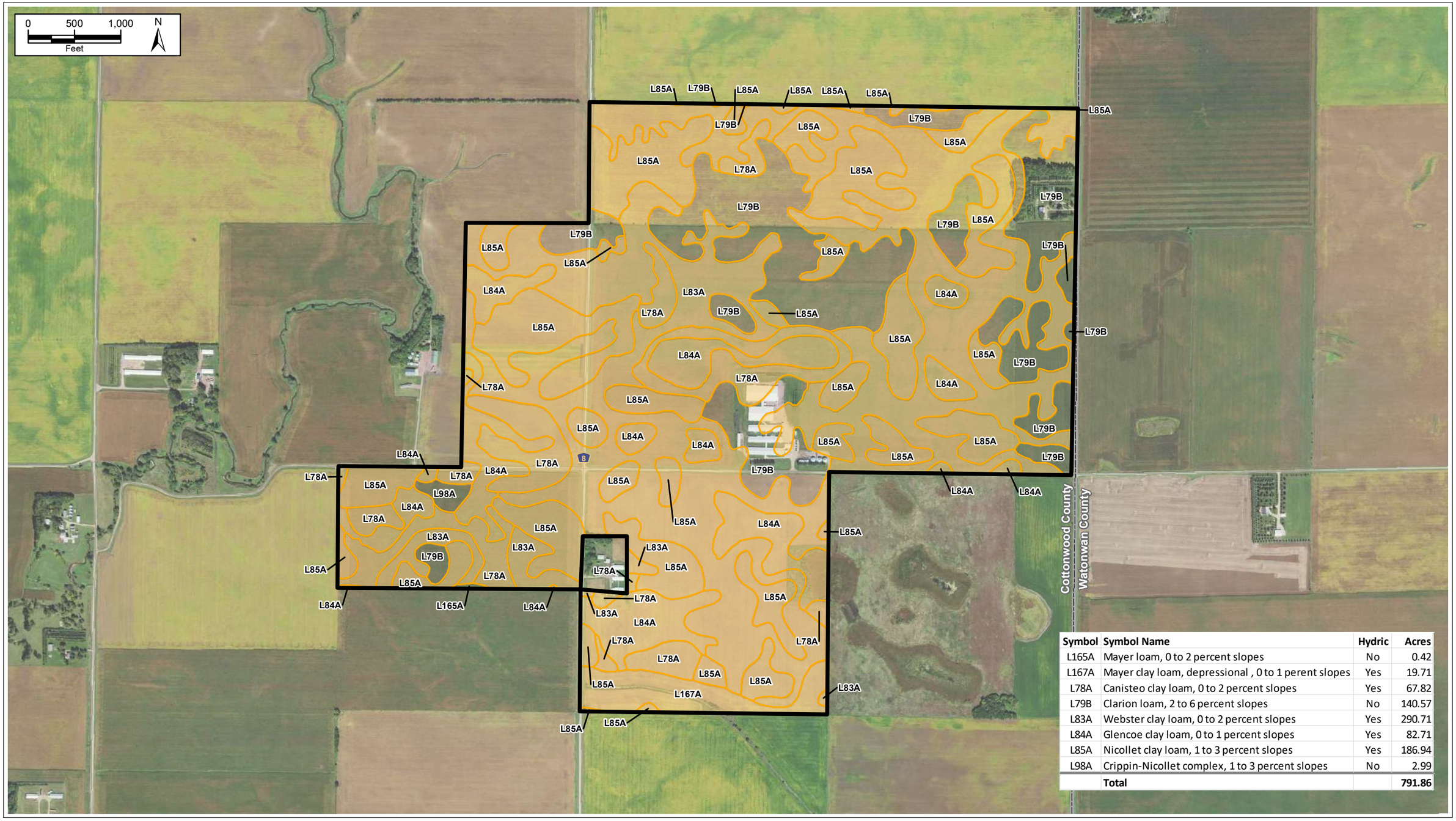

Symbol	Symbol Name	Hydric	Acres
L165A	Mayer loam, 0 to 2 percent slopes	No	0.42
L167A	Mayer clay loam, depressional , 0 to 1 perent slopes	Yes	19.71
L78A	Canisteo clay loam, 0 to 2 percent slopes	Yes	67.82
L79B	Clarion loam, 2 to 6 percent slopes	No	140.57
L83A	Webster clay loam, 0 to 2 percent slopes	Yes	290.71
L84A	Glencoe clay loam, 0 to 1 percent slopes	Yes	82.71
L85A	Nicollet clay loam, 1 to 3 percent slopes	Yes	186.94
L98A	Crippin-Nicollet complex, 1 to 3 percent slopes	No	2.99
	Total		**791.86**

FIGURE 6.
NRCS SOILS MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: USDA 2017 Imagery; MN DOT, 2017; ECT, 2020.

Project Boundary (± 792 Ac.)
County Line
Non-Hydric Soils
Hydric Soils

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Soils_20200415.mxd

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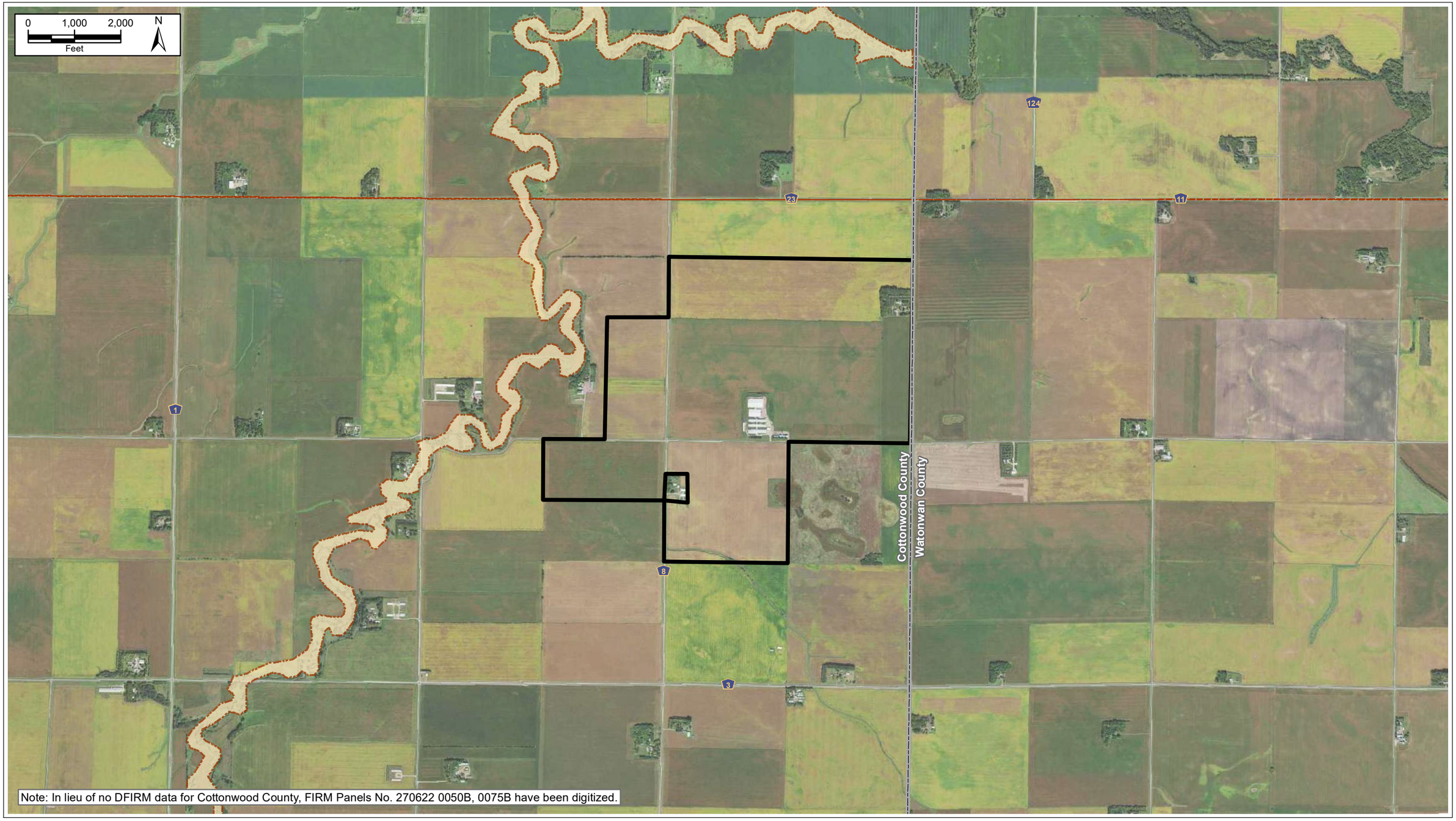

Note: In lieu of no DFIRM data for Cottonwood County, FIRM Panels No. 270622 0050B, 0075B have been digitized.

FIGURE 7.
FEMA FLOODPLAIN MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: MN DOT, 2017; FEMA, 1981; ECT, 2020.

Project Boundary (± 792 Ac.)
A - 1% Annual Chance of Flooding

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Floodplain_20200415.mxd

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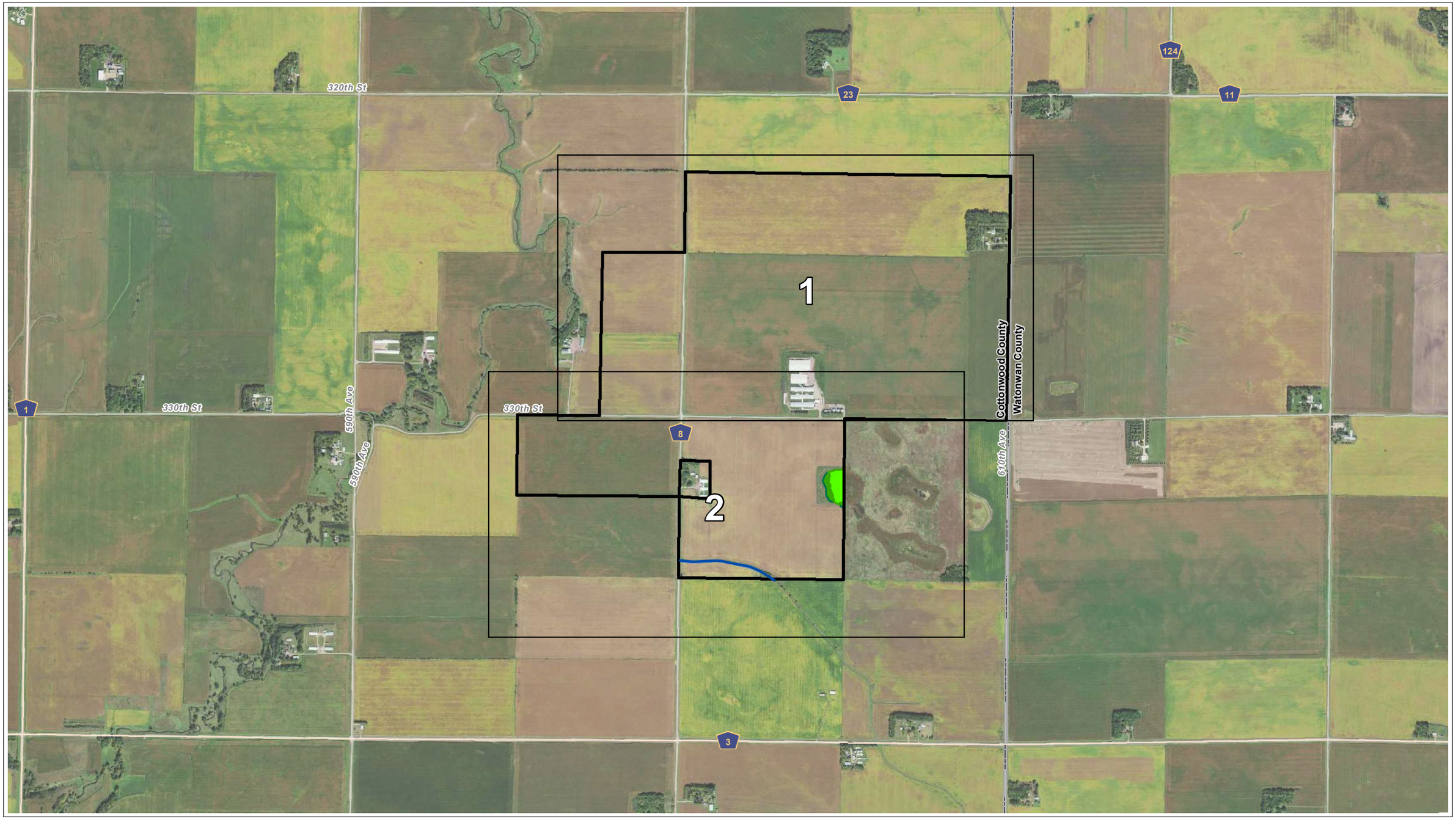

FIGURE 8.
WETLAND AND WATERCOURSE DELINEATION OVERVIEW MAP
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: MN DOT, 2017; ECT, 2020.

Project Boundary (± 792 Ac.)
Index Page
Wetland PEM
Wetland PFO
Ordinary High Water Mark
Perennial Watercourse

N

0 750 1,500
Feet

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Wetland_delineation_Overview_20200415.mxd

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FIGURE 8. PAGE 1 OF 2
WETLAND AND WATERCOURSE DELINEATION MAPS
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: MN DOT, 2017; ECT, 2020.

Project Boundary (± 792 Ac.)
① Photo Location
Data Point
Wetland PEM
Wetland PFO
Ordinary High Water Mark
Perennial Watercourse

N

0 250 500
Feet

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Wetland_delineation_20200415.mxd

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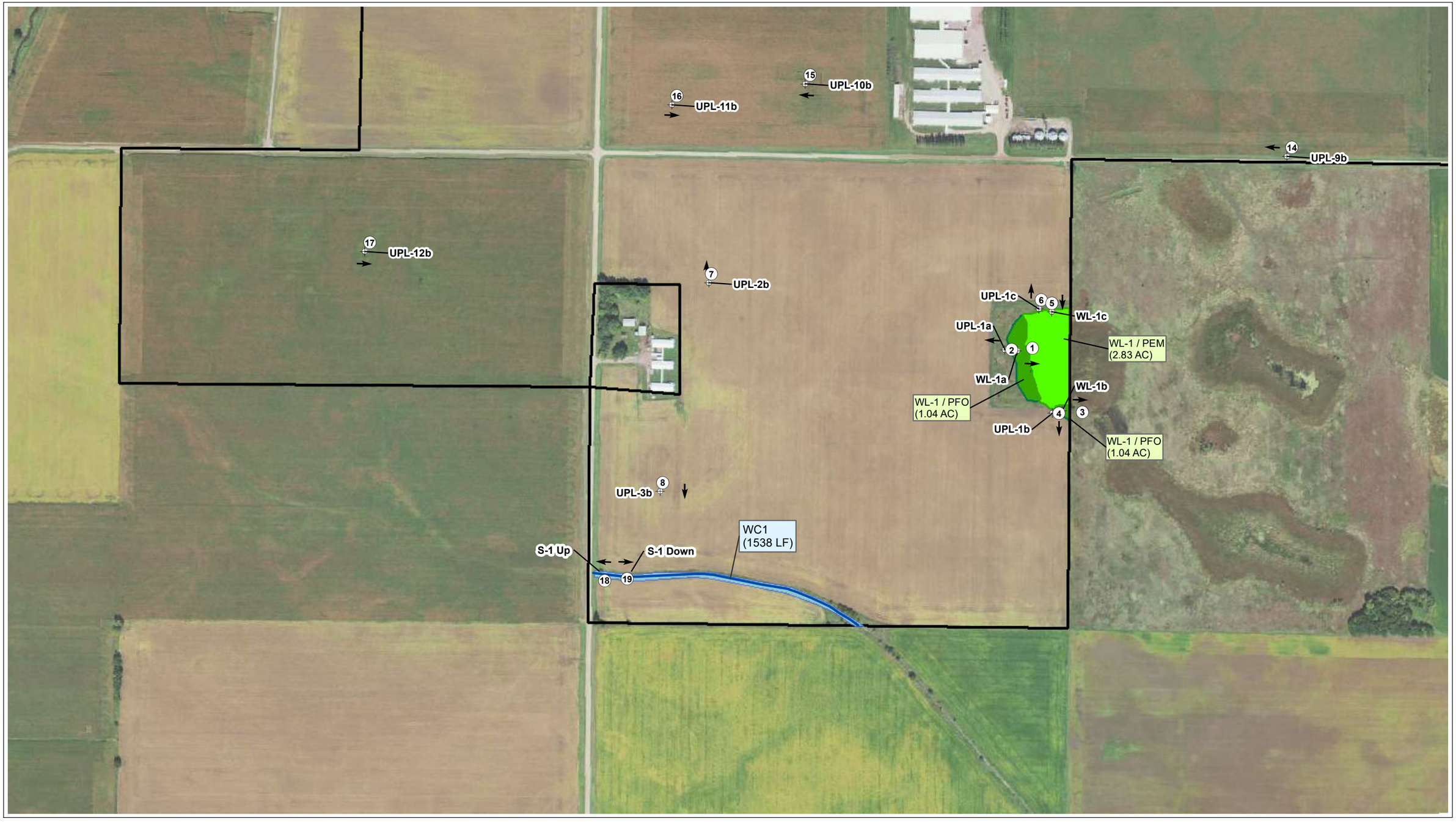

FIGURE 8. PAGE 2 OF 2
WETLAND AND WATERCOURSE DELINEATION MAPS
RED ROCK SOLAR
COTTONWOOD COUNTY, MINNESOTA

Sources: MN DOT, 2017; ECT, 2020.

Project Boundary (± 792 Ac.)
① Photo Location
Data Point
Wetland PEM
Wetland PFO
Ordinary High Water Mark
Perennial Watercourse

N

0 250 500
Feet

ECT Environmental Consulting & Technology, Inc.

P:_cadgis\2019\190660\RedRockSolar_Wetland_delineation_20200415.mxd

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Appendix B
Precipitation Worksheets

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:
county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Sunday, April 26, 1992

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: March 1992	second prior month: February 1992	third prior month: January 1992
estimated precipitation total for this location:	**1.84**	**0.75**	**0.94**
there is a 30% chance this location will have less than:	1.28	0.31	0.42
there is a 30% chance this location will have more than:	2.26	0.90	1.11
type of month: dry normal wet	**normal**	**normal**	**normal**
monthly score	**3 * 2 = 6**	**2 * 2 = 4**	**1 * 2 = 2**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**12 (Normal)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:
county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Saturday, May 31, 2003

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: April 2003	second prior month: March 2003	third prior month: February 2003
estimated precipitation total for this location:	**2.02**	**1.53**	**0.76**
there is a 30% chance this location will have less than:	1.92	1.28	0.31
there is a 30% chance this location will have more than:	3.40	2.26	0.90
type of month: dry normal wet	**normal**	**normal**	**normal**
monthly score	**3 * 2 = 6**	**2 * 2 = 4**	**1 * 2 = 2**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**12 (Normal)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Monday, August 2, 2004

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: July 2004	second prior month: June 2004	third prior month: May 2004
estimated precipitation total for this location:	**6.30**	**2.55**	**5.23**
there is a 30% chance this location will have less than:	2.67	2.95	2.15
there is a 30% chance this location will have more than:	4.16	4.97	4.11
type of month: dry normal wet	**wet**	**dry**	**wet**
monthly score	**3 * 3 = 9**	**2 * 1 = 2**	**1 * 3 = 3**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**14 (Normal)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Wednesday, May 31, 2006

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: April 2006	second prior month: March 2006	third prior month: February 2006
estimated precipitation total for this location:	**5.42**	**1.86**	**0.30**
there is a 30% chance this location will have less than:	1.92	1.28	0.31
there is a 30% chance this location will have more than:	3.40	2.26	0.90
type of month: dry normal wet	**wet**	**normal**	**dry**
monthly score	**3 * 3 = 9**	**2 * 2 = 4**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**14 (Normal)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Wednesday, May 21, 2008

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: April 2008	second prior month: March 2008	third prior month: February 2008
estimated precipitation total for this location:	**3.17**	**1.28**	**0.20**
there is a 30% chance this location will have less than:	1.92	1.28	0.31
there is a 30% chance this location will have more than:	3.40	2.26	0.90
type of month: dry normal wet	**normal**	**normal**	**dry**
monthly score	**3 * 2 = 6**	**2 * 2 = 4**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**11 (Normal)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:
county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Tuesday, June 2, 2009

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: May 2009	second prior month: April 2009	third prior month: March 2009
estimated precipitation total for this location:	**1.34**	**1.68**	**1.28**
there is a 30% chance this location will have less than:	2.15	1.92	1.28
there is a 30% chance this location will have more than:	4.11	3.40	2.26
type of month: dry normal wet	**dry**	**dry**	**normal**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 2 = 2**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**7 (Dry)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Saturday, April 23, 2011

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: March 2011	second prior month: February 2011	third prior month: January 2011
estimated precipitation total for this location:	**1.39**	**1.50**	**1.25**
there is a 30% chance this location will have less than:	1.28	0.31	0.42
there is a 30% chance this location will have more than:	2.26	0.90	1.11
type of month: dry normal wet	**normal**	**wet**	**wet**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 3 = 3**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**15 (Wet)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:
county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Friday, October 12, 2012

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: September 2012	second prior month: August 2012	third prior month: July 2012
estimated precipitation total for this location:	**0.42**	**1.55**	**0.90**
there is a 30% chance this location will have less than:	1.69	2.22	2.67
there is a 30% chance this location will have more than:	3.37	4.41	4.16
type of month: dry normal wet	**dry**	**dry**	**dry**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**6 (Dry)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Cottonwood** township number: **106N**
township name: **Midway** range number: **34W**
nearest community: **Darfur** section number: **2**

Aerial photograph or site visit date:
Wednesday, July 22, 2015

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: June 2015	second prior month: May 2015	third prior month: April 2015
estimated precipitation total for this location:	**3.74**	**5.46**	**1.49**
there is a 30% chance this location will have less than:	2.95	2.15	1.92
there is a 30% chance this location will have more than:	4.97	4.11	3.40
type of month: dry normal wet	**normal**	**wet**	**dry**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**13 (Normal)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

WETS WORKSHEET

Date: May 19, 2020

Weather Station: St. Jame's, MN Landowner: Red Rock Solar

County: Watonwan State: Minnesota

Soil name: Loamy & Clay Loam soils Growing Season: 4/20 - 10/14

Photo date: May 11, 2020

		Long-term rainfall records							
	Month	3 yrs. In 10 less than	Normal	3 yrs. In 10 more than	Rain fall	Condition dry, wet, normal	Condition value	Month weight value	Product of pervious two columns
1st prior month*	April	2.01	2.98	3.56	1.32	Dry	1	3	3
2nd prior month*	March	0.82	1.65	1.99	2.72	Wet	3	2	6
3rd prior month*	February	0.3	0.7	0.81	1.26	Wet	3	1	3
								Sum	12

*Compared to photo data

Note: If sum is

6-9 Then prior period has been drier than normal

10-14 Then prior period has been normal

15-18 Then prior period has been wetter than normal

Condition Value

Dry = 1

Normal = 2

Wet = 3

Conclusion: Year is Normal

WETS Table

WETS Station: ST. JAMES WWTP, MN								
Requested years: 1980 - 2020								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	24.3	6.1	15.2	0.75	0.28	0.86	2	10.2
Feb	28.5	10.1	19.3	0.70	0.30	0.81	2	8.5
Mar	40.6	22.6	31.6	1.65	0.82	1.99	3	8.0
Apr	56.6	34.6	45.6	2.98	2.01	3.56	6	3.5
May	70.3	47.6	58.9	4.17	2.89	4.96	8	0.0
Jun	79.7	57.9	68.8	4.67	2.99	5.62	8	0.0
Jul	83.3	61.6	72.5	4.05	2.62	4.87	7	0.0
Aug	80.4	59.2	69.8	3.94	2.37	4.78	6	0.0
Sep	73.9	50.1	62.0	3.30	1.63	4.03	5	0.0
Oct	59.6	36.8	48.2	2.34	1.03	2.85	4	0.3
Nov	42.5	24.3	33.4	1.22	0.62	1.45	3	5.5
Dec	27.7	11.3	19.5	1.15	0.55	1.38	3	9.8
Annual:					-	-		
Average	55.6	35.2	45.4	-	-	-	-	-
Total	-	-	-	30.90			58	45.8

GROWING SEASON DATES			
Years with missing data:	24 deg = 8	28 deg = 7	32 deg = 7
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 33	28 deg = 34	32 deg = 34
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	4/9 to 10/24: 198 days	4/20 to 10/14: 177 days	4/27 to 10/3: 159 days
70 percent *	4/6 to 10/28: 205 days	4/17 to 10/18: 184 days	4/24 to 10/6: 165 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1940					M2.03	6.50	0.71	6.45	0.96		2.28	2.20	21.13
1941	0.38	0.62	0.64	3.23	3.09	M7.86	2.32	1.99	4.20	4.19	1.40	0.70	30.62
1942	0.40	0.18	2.65	0.85		4.94	3.26	3.31	7.61	0.47	0.25	0.34	24.26
1943	2.69	1.98	1.30	0.90	5.71	5.12	4.68	6.18	3.67	1.70	0.65	0.00	34.58
1944	0.74	M0.95	0.79	2.99	M8.58	4.79	M2.75	5.01	1.77	0.25	1.65	0.07	30.34
1945	0.15	M1.35	1.65	2.97	3.32	5.55	4.45	1.29	5.26		1.61	0.97	28.57
1946	M0.53	M0.79	2.60		4.33	5.95	2.01	M2.79	7.50	3.44	M1.27	0.52	31.73
1947	0.47	1.63	M0.54	3.11	1.56	6.54	0.97	1.57	2.44	1.86	M2.42	0.66	23.77
1948	T	1.41	0.36	3.38	1.84		2.45	3.90	2.		2.48	0.49	19.

									86				17
1949	1.34	0.08	3.22	0.72	3.58	3.42	4.86	0.54	2.72	1.61	0.28	0.97	23.34
1950	0.54	0.40	1.52	1.81	4.18	3.80	3.60	1.60	2.59	1.54	0.86	0.40	22.84
1951	0.26	1.13	3.83	1.90	3.74	5.51	1.50	4.11	4.57	2.05	1.02	M0.89	30.51
1952	1.36	0.25	1.50	1.05	1.80	4.79	3.08	3.59	0.59	0.00	1.61	0.23	19.85
1953	0.69	1.03	1.51	4.94	7.28	8.53	4.18	2.69	0.47	0.37	2.11	1.30	35.10
1954	0.04	0.98	1.95	2.37	2.73	4.42	3.29	4.67	3.06	1.69	0.19	0.08	25.47
1955	0.20	0.76	0.24	2.32	0.89	3.27	3.50	4.97	1.12	1.11	0.19	0.49	19.06
1956	0.16	0.39	1.51	2.38	3.81	4.76	3.55	3.90	0.60	0.68	2.12	0.31	24.17
1957	T	0.28	2.03	0.79	3.53	7.47	5.26	5.23	1.39	1.94	1.35	0.18	29.45
1958	0.20	0.27	0.26	3.73	M1.43	1.89	4.73	1.34	0.99	0.41	1.02	0.05	16.32
1959	0.12	0.43	0.17	0.37	6.81	2.73	0.57	6.93	3.87	3.16	M0.29	1.75	27.20
1960	0.44	0.16	0.67	4.68	5.56	3.16	5.38	5.93	5.83	0.31	0.94	0.41	33.47
1961	0.06	0.47	2.21	1.21	4.12	1.44	7.95	2.82		1.23	0.62	0.53	22.66
1962	0.35	1.01	1.40		4.23	4.06	6.31	3.92	1.85	0.85	0.35	0.12	24.45
1963	0.32	0.44		2.37	2.16	4.02	8.92	1.96	3.89	1.04	0.01	0.14	25.27
1964	0.16	0.07	0.81	4.10	6.13	2.00	4.07		8.11	0.33	1.16	0.66	27.60
1965	0.74	1.17	1.41	4.31	5.47	3.49	1.39	1.83	5.80	0.73	0.76	0.75	27.85
1966	0.56	0.87	0.84	1.29	1.17	4.37	4.83	5.67	2.49	2.21	0.19	0.71	25.20
1967	1.01	0.51	0.51	4.79	0.50	6.03	2.34	5.65	0.50	1.05	0.02	0.36	23.27
1968	0.41	0.01	0.05	3.86	2.03	4.76	8.21	2.29	8.29	5.33	0.44	1.34	37.02
1969	1.72	1.16	1.02	2.61	3.04	4.70	4.57	1.90	0.72	1.59	0.24	1.77	25.04
1970	0.20	0.12	1.66	3.40	2.46	2.46	5.74	1.17	5.26	4.92	2.29	0.73	30.41
1971	0.46	1.93	0.77	1.12	2.89	5.52	1.02	1.23	2.16	4.76	2.24	0.73	24.83
1972	0.56	0.27	0.86	2.40	4.28	2.26	4.93	1.85	2.66	2.02	1.57	1.84	25.50
1973	0.73	0.45	1.85	2.09	3.75	1.55	3.01	1.33	4.42	0.96	3.33	1.03	24.50
1974	0.05	0.75	0.76	2.36	4.33	5.18	1.65	3.79	0.95	1.46	0.77	0.25	22.30
1975	1.33	0.34	2.93	2.73	1.73	5.70	0.75	3.60	1.82	0.40	4.40	0.58	26.31
1976	0.24	0.45	2.16	0.65	1.06	2.06	1.83	3.48	2.65	0.79	0.04	0.45	15.86
1977	0.26	0.73	4.21	2.60	4.97	5.74	3.37	2.80	5.69	3.80	2.39	0.98	37.54
1978	0.29	0.48	0.70	2.80	2.58	3.83	4.02	3.64	1.40	0.43	1.45	0.48	22.10
1979	1.57	0.79	3.45	1.63	2.99	6.26	3.03	6.35	2.28	4.33	1.76	0.04	34.48
1980	0.37	0.70	0.80	1.15	5.52	1.72	0.40	6.50	2.75	0.86	0.09	0.19	21.05
1981	0.23	1.26	0.78	3.17	1.67	8.40	6.32	4.02		2.89	0.94	0.66	30.34
1982	1.09	0.25	1.18	1.55	4.18	0.99	4.23	4.58	4.	3.	2.24	2.44	30.

									37	59			69
1983	0.29	0.40	2.45	2.31	3.56	5.10	2.02	3.31	2.18	2.05	2.48	0.90	27.05
1984	0.81	0.49	1.01	3.19	1.98	5.65	2.04	2.17	3.16	3.62	0.68	1.56	26.36
1985	0.37	0.06	4.27	3.48	3.55	2.14	2.07	5.45	5.23	3.19	1.41	0.82	32.04
1986	1.12	0.24	1.72	5.81	3.30	6.14	8.93		6.06		0.94	0.09	34.35
1987	0.30	T	0.84	0.69	3.00	1.76	5.15		1.73	0.25	1.76	1.49	16.97
1988	M2.66	0.26	0.39	M2.94	1.65	1.02	1.40	4.17	2.16	0.06	2.14	MT	18.85
1989		MT	2.92	3.39	1.62	3.27	3.73	2.81	1.52	0.18	0.86	0.27	20.57
1990	T	0.50	4.18	1.97	3.52	4.89	7.46	0.89	0.81	1.37	M0.33	MT	25.92
1991	MT	MT	M0.10	6.43	5.58	8.68	3.75	3.16	6.11	1.25	M1.60	M0.50	37.16
1992	M0.50	M0.00	M1.96	3.45	2.81	3.65	6.22	5.03	3.02	2.96	M0.42	MT	30.02
1993	M1.20	M0.00	M1.05	3.86	6.25	10.64	8.05	4.70	3.60	M0.35	M1.06		40.76
1994			M0.12	M4.67	2.13	4.64	4.18	4.06	3.40	2.19	M1.08		26.47
1995			M3.37	M2.92	4.91	2.26	6.74	2.78		M3.87	M0.71	M0.00	27.56
1996	M1.20	0.05	M0.50	M0.67	3.54	6.96	2.43	7.97	1.84	3.28	M2.64		31.08
1997	M0.54	M0.00	M1.75	M1.96	4.16	6.10	4.56	4.74	1.99	1.74	M0.26	M7.35	35.15
1998	M0.50	M0.35	M2.89	3.34	M2.49	2.86	2.88	3.82	1.73	4.64	M1.15	M0.12	26.77
1999	M0.33	MT	M0.18	M5.15	3.69	M4.95	3.40	1.63	0.53	0.63	1.88	M0.01	22.38
2000	M0.00	M0.86	M1.07	M0.94	6.07	3.53	4.38	2.75	M0.98	1.60	M1.86		24.04
2001	M0.25	M0.25	MT	7.15	4.68	M4.49	5.32	1.53	2.28	0.69	M3.30	MT	29.94
2002	M0.00	MT	M1.02	M3.19	2.77	3.91	3.03	6.21	1.84	M2.48	M0.00	M0.16	24.61
2003	M0.11	M0.22	M2.04	M1.30	5.26	5.29	4.92	2.05	2.32	0.36	M0.58	M2.34	26.79
2004	M0.02	M0.08	1.36	1.64	5.87	2.94	4.31	2.90	8.57	1.00	1.13	0.21	30.03
2005	M0.01	1.05	M0.47	4.61	M2.35	4.10	5.00	M4.79	8.37	M0.27	M1.45	M0.14	32.61
2006	M0.04	M0.41	M1.97	M4.95	M1.63	M3.71	3.04	5.13	M2.15	0.55	1.31	2.01	26.90
2007	1.79	1.33	2.05	1.74	2.57	1.67	2.31	10.72	3.26	M4.53	T	M0.35	32.32
2008	M0.42	M0.01	M1.62	3.91	6.30	4.69	2.31	0.96	M1.99	3.69	M1.50	2.68	30.08
2009	1.33	1.78	0.98	1.15	0.64	4.22	1.77	2.78	M0.09	M7.46	1.15	M1.22	24.57
2010	0.95	0.73	1.60	2.81	2.07	7.24	6.14	3.01	13.66	1.50	0.88	2.13	42.72
2011	M0.24	1.02	2.34	3.04	4.51	4.33	4.77	0.08	1.07	0.26	0.07	1.03	22.76
2012	0.38	2.04	1.42	2.99	10.11	0.97	1.86	1.57	0.37	0.94	0.71	1.07	24.43
2013	0.98	0.91	3.39	M1.97	5.64	7.01	1.21	3.77	1.14	2.90	0.62	0.98	30.52
2014	0.94	0.28	M0.50	3.66	1.97	10.46	1.06	6.14	1.64	0.94	0.97	0.88	29.44
2015	0.42	0.53	0.36	1.84	4.60	3.48	2.88	3.88	3.41	2.83	4.21	2.75	31.19
2016	0.27	M0.66	2.80	3.60	7.69	6.07	9.12	7.16	7.	4.	1.97	1.46	52.

									36	43			59
2017	0.83	0.43	1.84	2.42	5.36	2.98	2.82	3.83	2.30	4.95	0.08	0.59	28.43
2018	1.08	1.18	2.87	3.36	6.17	10.66	4.97	5.50	5.95	2.83	1.39	2.47	48.43
2019	1.70	1.84	3.12	4.31	7.08	2.21	4.62	3.97	4.32	6.02	2.49	1.10	42.78
2020	1.85	1.26	2.72	1.32	M1.56								8.71
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2016-07-22													

Appendix C
USACE Datasheets

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar | City/County: Cottonwood | Sampling Date: 5/11/2020

Applicant/Owner: Red Rock Solar, LLC | State: MN | Sampling Point: WL-1a

Investigator(s): R. Scott | Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope | Local relief (concave, convex, none): Concave

Slope (%): 0 | Lat: 44.003909° | Long: -94.870433° | Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes | NWI classification: PFO/Type 1

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	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	30	Yes	FAC
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft.)			
1. Salix lucida	50	Yes	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5ft.)			
1. Schoenoplectus maritimus	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= 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	40	x 1 =	40
FACW species	50	x 2 =	100
FAC species	30	x 3 =	90
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	120 (A)		230 (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 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: WL-1a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	90	10YR 4/6	10	C	PL&M	SiL	
6-12	10YR 2/1	80	10YR 4/6	20	C	M	L	
12-18	10YR 5/1	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ 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 X No _____ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

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: Red Rock Solar City/County: Cottonwood Sampling Date: 5/11/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-1a

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 2 Lat: 44.003911° Long: -94.870631° Datum: NAD 83

Soil Map Unit Name: Webster clay loam, 0 to 2 percent slopes NWI classification: Upland

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft.)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5ft.)			
1. Poa pratensis	70	Yes	FAC
2. Taraxacum officinale	20	Yes	FACU
3. Bromus inermis	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = 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: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	70	x 3 =	210
FACU species	20	x 4 =	80
UPL species	_____	x 5 =	_____
Column Totals:	90 (A)		290 (B)

Prevalence Index = B/A = 3.22

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: UPL-1a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					SiL	
10-16	10YR 2/1	95	10YR 4/4	5	C	M	L	
16-24	10YR 3/1	95	10YR 4/4	5	C	M	CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/11/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: WL-1b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 44.003018° Long: -94.869545° Datum: NAD 83

Soil Map Unit Name: Canisteo clay loam, 0 to 2 percent slopes NWI classification: PFO/Type 1

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	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	30	Yes	FAC
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft.)			
1. Salix lucida	50	Yes	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5ft.)			
1. Schoenoplectus maritimus	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= 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	40	x 1 =	40
FACW species	50	x 2 =	100
FAC species	30	x 3 =	90
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	120 (A)		230 (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 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: WL-1b

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	90	10YR 4/6	10	C	PL&M	SiL	
6-12	10YR 2/1	80	10YR 4/6	20	C	M	L	
12-18	10YR 5/1	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ 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 X No _____ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

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: Red Rock Solar City/County: Cottonwood Sampling Date: 5/11/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-1b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Convex

Slope (%): 1 Lat: 44.002948° Long: -94.869610° Datum: NAD 83

Soil Map Unit Name: Canisteo clay loam, 0 to 2 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-1b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					L	
12-18	10YR 2/1	100					L	
18-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/11/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: WL-1c

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 44.004489° Long: -94.869896° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: PEM/Type 3

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: 30ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft.)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5ft.)			
1. Schoenoplectus maritimus	50	Yes	OBL
2. Typha angustifolia	50	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= 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	90	x 1 =	90
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	90 (A)		90 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X 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: WL-1c

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	90	10YR 4/6	10	C	PL&M	SiL	
8-12	10YR 2/1	80	10YR 4/6	20	C	M	L	
12-18	10YR 5/1	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ 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): 1

Water Table Present? Yes X No ___ Depth (inches): 8

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

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: Red Rock Solar City/County: Cottonwood Sampling Date: 5/11/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-1c

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Convex

Slope (%): 1 Lat: 44.004544° Long: -94.869922° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-1c

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					L	
12-18	10YR 2/1	100					L	
18-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/12/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-2b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Midslope Local relief (concave, convex, none): None

Slope (%): 1 Lat: 44.004888° Long: -94.876923° Datum: NAD 83

Soil Map Unit Name: Webster clay loam, 0 to 2 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-2b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					L	
12-18	10YR 2/1	100					L	
18-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/12/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-3b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S12

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): None

Slope (%): 1 Lat: 44.001689° Long: -94.877912° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-3b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					SiL	
8-14	10YR 3/1	100					L	
14-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/12/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-4b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S2

Landform (hillslope, terrace, etc.): Midslope Local relief (concave, convex, none): Convex

Slope (%): 1 Lat: 44.011217° Long: -94.881356° Datum: NAD 83

Soil Map Unit Name: Nicollet clay loam, 1 to 3 percent slopes NWI classification: Upland

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

Remarks:

VEGETATION – Use scientific names of plants.

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-4b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					SiL	
7-16	10YR 2/1	100					CL	
16-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/12/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-5b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Mid slope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 44.010149° Long: -94.875229° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated soybean field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-5b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					L	
12-18	10YR 2/1	100					L	
18-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/12/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-6b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Midslope Local relief (concave, convex, none): None

Slope (%): 1 Lat: 44.016767° Long: -94.873736° Datum: NAD 83

Soil Map Unit Name: Webster clay loam, 0 to 2 percent slopes NWI classification: Upland

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

Remarks:

VEGETATION – Use scientific names of plants.

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-6b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					SiL	
14-24	10YR 2/1	100					CL	

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/13/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-7b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Midslope Local relief (concave, convex, none): None

Slope (%): 1 Lat: 44.012161° Long: -94.864325° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Remarks:

VEGETATION – Use scientific names of plants.

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated soybean field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-7b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					SiL	
12-18	10YR 2/1	100					L	
18-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/13/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-8b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 44.010322° Long: -94.869938° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Remarks:

VEGETATION – Use scientific names of plants.

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated soybean field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-8b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					L	
8-16	10YR 2/1	100					L	
16-24	10YR 2/1	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/13/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-9b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 44.006915° Long: -94.864696° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated soybean field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-9b

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					L	
10-18	10YR 2/1	97	10YR 4/4	3	C	M	L	
18-24	10YR 3/2	100	10YR 4/4	3	C	M	CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/13/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-10b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 44.007948° Long: -94.874930° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated soybean field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					L	
12-18	10YR 2/1	100					L	
18-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/13/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-11b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S1

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 44.007606° Long: -94.877753° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated soybean field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL-11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					SiL	
10-16	10YR 2/1	100					L	
16-24	10YR 3/2	100					CL	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Red Rock Solar City/County: Cottonwood Sampling Date: 5/12/2020

Applicant/Owner: Red Rock Solar, LLC State: MN Sampling Point: UPL-12b

Investigator(s): R. Scott Section, Township, Range: T106N R34W S11

Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 44.005311° Long: -94.884230° Datum: NAD 83

Soil Map Unit Name: Glencoe clay loam, 0 to 1 percent slopes NWI classification: Upland

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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.)

This data point was taken in a cultivated corn field that was recently planted. 100% bare ground.

SOIL

Sampling Point: UPL12b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					L	
12-24	10YR 2/1	100					CL	

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ 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)
- ___ 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)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ 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 Present? Yes _____ No X Depth (inches): _____

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

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Appendix D
Photographic Log