Appendix H Wetland Delineation

Wetlands and Waters Survey

Elk Creek Solar

Rock County, Minnesota

August 14, 2023

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EXECUTIVE SUMMARY

This report presents the findings of a Wetlands and Waters Survey completed on behalf of Elk Creek Solar, LLC, for the proposed Elk Creek Solar project in Rock County, Minnesota (the Project). The Project Area includes approximately 1,673 acres of land where solar energy facilities may be developed. Wetland delineation surveys were previously completed by HDR, Inc. (HDR) for 1,593 acres of the Project Area in 2019 (HDR Survey Area). The remaining 80 acres have subsequently been added to the Project Area (Expansion Area).

The field surveys completed for the Project identified 10 wetland and water features totaling approximately 33 acres within the Project Area. Six of the wetlands in the Project Area were previously delineated by HDR and Tetra Tech verified their boundaries during the field survey. Each of the identified wetlands and waters in the Project Area was reviewed for potential jurisdiction with one or more of the following regulating entities:

- U.S. Army Corps of Engineers (USACE) waters of the U.S. (WOTUS) under Section 404 of the Clean Water Act (CWA).
- The Minnesota Wetland Conservation Act (WCA) administered locally by Rock County.
- Mapped resources in the Public Waters Inventory (PWI) regulated by the Minnesota Department of Natural Resources (MN DNR) under the Public Waters Work Program.

Table ES-1 summarizes the identified wetland and water resources and their recommended jurisdictional status. However, only the USACE, Rock County, and MN DNR can make the final determination on the regulatory jurisdiction of wetlands and waters

Table ES-1: Summary of Wetlands and Waters in the Project Area and Probable Regulatory Jurisdiction

Aquatic Resource	Cowardin Classification Code(s)[1]	Project Area		USACE and MN WCA Jurisdiction		MN WCA Jurisdiction		USACE Jurisdiction		Not Jurisdictional	
		Count	Acres	Count	Acres	Count	Acres	Count	Acres	Count	Acres
Seasonally Flooded Basin Wetland	PEMAf	1	0.355	0	0	1	0.355	0	0	0	0
Wet Meadow Wetland	PEMB, PEMBf, PEMBx	6	30.203	3	26.665	2	3.137	0	0	1	0.401
Wetlands Subtotal		***7***	***30.558***	***3***	***26.665***	***3***	***3.492***	***0***	***0***	***1***	***0.401***
Perennial Stream	R2UBF, R2UBFx	2	2.174	0	0	0	0	2	2.174	0	0
Intermittent Stream	R4SBC	1	0.336	0	0	0	0	1	0.336	0	0
Streams Subtotal		***3***	***2.510***	***0***	***0***	***0***	***0***	***3***	***2.510***	***0***	***0***
Total of All Aquatic Resources		**10**	**33.068**	**3**	**26.665**	**3**	**3.492**	**3**	**2.510**	**1**	**0.401**

[1] Cowardin wetland classification codes are defined in Appendix D of the report.

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1.0 INTRODUCTION

1.1 PURPOSE

Elk Creek Solar, LLC proposes to develop the Elk Creek Solar project (the Project) in Rock County, Minnesota. The Project Area includes approximately 1,673 acres of land where solar energy facilities may be developed. Wetland delineation surveys were previously completed by HDR, Inc. (HDR) for 1,593 acres of the Project Area in 2019 (HDR Survey Area) (HDR 2019a, HDR 2019b), and the remaining 80 acres have subsequently been added to the Project Area (Expansion Area) (Appendix A: Figure 1).

Tetra Tech, Inc. (Tetra Tech) has completed surveys to identify and delineate wetlands and waters in the Project Expansion Area and reverify the boundaries of the wetlands previously surveyed by HDR. The wetlands and waters survey included desktop and field investigations of the Project Area to verify the presence and location of wetlands and other surface waters and determine which, if any, may be subject to U.S. Army Corps of Engineers (USACE) jurisdiction, Minnesota Department of Natural Resources (MN DNR) jurisdiction, or regulated locally under the Minnesota Wetland Conservation Act (WCA). This report describes the Project Area, regulatory framework, methods, survey results and conclusions, and references used to support the conclusions. Appendices include figures illustrating the Project Area, select reviewed reference materials, survey results, wetland determination data forms, and photographs.

1.2 SITE LOCATION AND ENVIRONMENTAL SETTING

The Project Area includes approximately 1,673 acres of land where the proposed solar energy facilities may be developed (Appendix A: Figure 1). The Project Area is located approximately 1 mile north of the town of Magnolia in Rock County, Minnesota and encompasses portions of Sections 27, 34, and 35 in Vienna Township (Township 103 North, Range 44 West) and Section 3 in Magnolia Township (Township 102 North, Range 33 West).

The landscape surrounding the Project Area includes gently rolling topography dissected by numerous waterways that drain generally southwest to the Big Sioux River (USDA 1988). The Project Area lies within the Champepadan Creek-Rock River watershed. Most of the Project Areas drains generally southeast toward Elk Creek, which is located near the southeast corner of the Project Area. The northern-most part of the Project Area drains north toward Champepadan Creek, located 0.5 mile north of the Project Area, or west toward the Rock River.

1.3 REGULATORY FRAMEWORK

1.3.1 U.S. Army Corps of Engineers

The USACE has regulatory jurisdiction over waters of the U.S. (WOTUS) under Section 404 of the Clean Water Act (CWA) as defined by 33 CFR Part 328. The extent of the USACE regulatory jurisdiction over WOTUS was defined by the USACE and U.S. Environmental Protection Agency (EPA) in a final rule published in the Federal Register on January 18, 2023, which became effective on March 20, 2023 (88 FR 3004, January 18, 2023). However, the

U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. EPA*, 598 U.S. ___ (2023) found that only wetlands with a continuous surface connection to bodies that are WOTUS in their own right are WOTUS. As of May 26, 2023, USACE has indicated that they will be interpreting the definition of WOTUS consistent with the Supreme Court's decision (USACE 2023a). USACE and EPA are developing a rule to amend the 2023 definition of WOTUS consistent with the Supreme Court's decision that is expected to be issued by September 1, 2023 (USACE 2023b).

The 2023 definition of WOTUS as interpreted consistent with the *Sackett* decision indicates that the USACE has regulatory jurisdiction over traditional navigable waters; tributaries of traditional navigable waters that are relatively permanent; and wetlands adjacent to another jurisdictional water such that the wetland is an indistinguishable part of the jurisdictional water. Relatively permanent tributaries have flowing or standing water year-round or continuously during certain times of the year. Relatively permanent waters do not include surface waters with flowing or standing water for only a short duration in direct response to precipitation.

The USACE is the sole authority in determining whether federal jurisdiction extends to specific wetlands or waters. Suggestions regarding the USACE jurisdiction of wetlands and waters in this report are preliminary and based on Tetra Tech's interpretation of the guidance issued by the USACE and EPA, review of available desktop data, and evidence observed in the field. There are two types of jurisdictional determinations (JDs) that can be requested from USACE to determine the jurisdiction of wetlands and waters. A preliminary JD (PJD) is a nonbinding written indication that for purposes of calculating impacts and determining compensatory mitigation requirements all waters and wetlands in the review area are treated as jurisdictional WOTUS. An approved JD (AJD) is an official USACE determination that jurisdictional WOTUS are either present or absent in the review area. An AJD precisely identifies the limits of those wetlands and waters determined to be jurisdictional under the CWA.

The USACE authorizes certain activities in navigable waters and WOTUS with pre-issued Nationwide Permits (NWPs) or Regional General Permits (RGPs). Impacts of up to 0.5 acre for utility projects such as solar energy facilities may be authorized by the USACE St. Paul District Utility RGP or NWP 51 for Land-Based Renewable Energy Generation Facilities with mitigation and a Pre-Construction Notification (PCN) usually being required if impacts exceed 0.1 acre of WOTUS. In order to use a NWP or RGP, all general and regional conditions must be met. A certification from the state is required under Section 401 of the CWA for all NWPs and RGPs. The Minnesota Pollution Control Agency (MPCA) is responsible for issuing 401 Water Quality Certifications in Minnesota (see Section 1.3.4). The USACE St. Paul District has regulatory jurisdiction over the Project Area.

1.3.2 Minnesota Wetland Conservation Act

The State of Minnesota regulates wetlands under the Minnesota Wetland Conservation Act (WCA) of 1991, currently implemented under MN Rules Chapter 8420. The WCA does not apply to public waters and public waters wetlands that have been inventoried by the Minnesota Department of Natural Resources (MN DNR) (see Section 1.3.3) or to "incidental wetlands", which are wetlands created in non-wetland areas by actions that were not intended to create the wetland such as certain ditches or other excavations.

The WCA requires anyone proposing to drain, fill, or excavate a wetland first to try to avoid disturbing the wetland; second, to try to minimize any impact on the wetland; and, finally, to replace any lost wetland acres, functions, and values. The WCA also establishes eight exempt activities that do not require wetland replacement. One of these exemptions is the “de minimis” exemption for minor wetland impacts. The de minimis exemption threshold ranges from 20 square-feet to 10,000 square-feet depending on the impacted wetland’s location in the state, the type of wetland, and location inside or outside of a shoreland wetland protection zone (see Section 1.3.5). Impacts below the relevant threshold do not require wetland replacement. The WCA is administered by Local Government Units (LGU). Rock County is the LGU responsible for administering the WCA for the Project.

1.3.3 Minnesota Department of Natural Resources

The MN DNR Public Waters Work Permit Program applies to those lakes, wetlands, and streams identified on MN DNR Public Water Inventory maps. Proposed projects affecting the course, current, or cross-section of these water bodies may require a Public Waters Work Permit from the MN DNR. There are two types of Public Waters Work Permits available from the MN DNR: general and individual permits. General permits are "pre-issued" permits issued on a statewide or county level. If work proposed in public waters or public waters wetlands meets the requirements of a specific general permit, an individual permit is not required. There are also several categories of projects that are excluded from the Public Waters Work Permit requirement; however, these exclusions would not typically apply to solar energy projects.

1.3.4 Minnesota Pollution Control Agency

Section 401 of the CWA requires certification from the state that any discharge authorized by an NWP or RGP does not violate state water quality standards. The MPCA issues 401 Water Quality Certifications for NWPs and RGPs in Minnesota. The MPCA granted water quality certification with conditions for NWP 51 in a letter dated December 21, 2020, and for the Utility RGP in a letter dated January 13, 2023.

1.3.5 Rock County

Minnesota Regulations, Parts 6120.2500 - 6120.3900 provide minimum standards and criteria to be incorporated into local government shoreland management controls that apply to shorelands of public waters of the state (see Section 1.3.3) that are subject to local government land use controls. Each local government is responsible for the administration and enforcement of its shoreland management controls adopted in compliance with these standards and criteria. Rock County defines their shoreland districts as including the area within 1,000 feet of the normal highwater mark of a lake, pond, or flowage; and 300 feet from a river or stream, or the landward extent of a floodplain, whichever is greater (Rock County 2000). The WCA de minimis exemption thresholds for wetlands within the shoreland zone are less than those outside the shoreland zone (see Section 1.3.2).

2.0 METHODS

2.1 EXISTING INFORMATION REVIEW

Tetra Tech reviewed available information to identify potential wetlands and waters areas within the Project Area. The following data sources were reviewed:

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2022);
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (USGS 2022);
- MN DNR Public Waters Inventory (PWI) (MN DNR 2020);
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) (FEMA 2023);
- FEMA Flood Insurance Rate Map (FIRM) Panel 270642B (FEMA 1988);
- Natural Resources Conservation Service (NRCS) Soil Survey Geographic (gSSURGO) Soils (NRCS 2022);
- MN DNR 2-foot elevation contours (MN DNR 2011);
- Aerial photography from 2008, 2015, 2017, 2019, and 2021 from U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) National Agricultural Imagery Program (NAIP);
- Historical precipitation data from the Minnesota State Climatology Office (Minnesota State Climatology Office 2023); and
- HDR 2019 Wetland Delineation Reports (HDR 2019a, HDR 2019b).

2.2 DESKTOP WETLANDS AND WATERS MAPPING

Tetra Tech reviewed previous wetland delineation reports, aerial photographs, elevation data, NWI, NHD, PWI, and SSURGO soils data to identify potential wetlands and waters within the Project Area. Using methods described by USACE and the Minnesota Board of Water and Soil Resources (BWSR) (USACE and BWSR 2016), the aerial photographs were reviewed for wetland signatures, and antecedent precipitation was evaluated to determine if the conditions preceding each photograph were normal, wet, or dry. Signatures at locations of potential wetlands and waters on aerial photographs were classified using eight codes (Table 1). The locations of desktop wetlands and waters were digitized using ArcGIS mapping software.

Table 2. Aerial Photograph Wetland Signature Codes

Code	Classification	Implication	Code	Classification	Implication
CS	Crop Stress	Wetland	WS	Wetland Signature	Wetland
DO	Drowned Out	Wetland	AP	Altered Pattern	Wetland
NC	Not Cropped	Wetland	SS	Soil Wetness Signature	Wetland
SW	Standing Water	Wetland	NV/NSS	Normal Vegetative Cover/ No Soil Wetness	Non-wetland

2.3 WETLANDS AND WATERS SURVEY

The wetlands and waters survey included field investigations of all areas of the Project Area and offsite hydrology review using aerial photography to verify the presence or absence of wetlands and other surface waters in the Project Area.

2.3.1 Field Survey

Wetlands were delineated in the Project Area using the level two on-site routine determination method set forth in the Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, Version 2.0 (USACE 2010). Potential wetlands were identified based on the review of existing data and observations made at the time of the survey. A transect was established in a representative transition zone of each potential wetland. The transect consisted of one sample point in the potential wetland, and if wetland criteria were met, one point in non-wetland. Vegetation, soil, and hydrology data was recorded on electronic data forms. Plant species dominance at sample points was based on the percent cover visually estimated within a 5-foot radius of the sample point for the herbaceous layer, a 15-foot radius for the shrub layer, and a 30-foot radius for tree and vine layers. Wetland indicator status for all plant species followed the National Wetland Plant List, Version 3.5 (USACE 2020). The wetland/non-wetland boundary was established based on the recorded sample point information. If a potential wetland did not meet all three wetland delineation criteria (hydrophytic vegetation, hydric soils, and hydrology) based on observations made at the time of the field visit it was determined to be non-wetland.

The previously delineated wetlands in the HDR Survey Area were reviewed to verify there were no significant changes to the boundaries. The wetland boundaries were verified based on general observations of select wetland indicators including vegetation, hydrology, topography, and/or soils as needed in the professional judgement of the wetland specialist conducting the survey. Paired sample points were not documented on wetland determination data forms if the wetland boundary appeared unchanged. Field observations and photographs of the verified wetland boundaries were documented.

Boundaries for non-wetland waters (i.e., ponds and streams) were established based on observations of the ordinary high water mark (OHWM), which is defined as the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (51 FR 41251, November 13, 1986).

Wetlands and waters boundaries were generally established only within the Project Area. If the boundary extended outside of the Project Area and was not mapped, observations regarding that portion of the feature extending outside of the Project Area were recorded. Wetlands and waters were classified according to Circular 39 (Shaw and Fredine 1971), Cowardin (Federal Geographic Data Committee [FGDC] 2013), and plant community (Eggers and Reed 2015) methods.

An Arrow 100 GPS receiver with sub-meter accuracy paired with a tablet running ESRI’s Survey123 for ArcGIS application was used in the field to survey the locations of sample points, the wetland/non-wetland boundaries, and

OHWM boundaries. Upon completion of the survey, the wetland specialist who captured the field data conducted a quality control review to ensure the spatial and attribute data of the features collected correspond with field observations.

2.3.2 Offsite Hydrology Assessment of Non-Wetland Areas

Historical precipitation records and aerial photography were used to evaluate the long-term history of wetland hydrology in accordance with the USACE and BWSR guidance concerning offsite wetland mapping conventions for agricultural land (USACE and BWSR 2016) for those desktop wetlands and waters within the Project Area that were determined to be non-wetlands during the field survey. Antecedent precipitation conditions were evaluated for readily available aerial photographs of the Project Area to determine which aerial photographs were taken following periods of normal precipitation. Antecedent precipitation was classified as normal, wet, or dry by comparing the precipitation during the three months preceding aerial photography dates to the 30-year average using the Minnesota Climatology Office tool (Minnesota State Climatology Office 2023).

The offsite hydrology assessment method generally applies a wetland determination when wetland signatures appear in at least 50 percent of aerial photographs from normal years, and a non-wetland determination when wetland signatures are lacking in more than 70 percent of aerial photographs from those years. The desktop wetlands and waters with a non-wetland field survey determination were reviewed in each of the available aerial photographs with normal antecedent precipitation for wetland signatures as described above in Section 2.2 to verify that wetland hydrology is absent at those locations (i.e., wetland signatures observed in less than 50 percent of aerial photographs). If aerial photography from at least five normal years was not available, equal numbers of aerial photographs from wet and dry years were selected so that aerial photography from at least five years was reviewed.

The review of historical precipitation records and aerial photography to evaluate the long-term history of wetland hydrology is most effective in agricultural fields planted with annual row crops. Therefore, the assessment was conducted with caution for any areas that did not appear to be planted with annual row crops in one or more of the reviewed aerial photographs.

3.0 RESULTS

3.1 EXISTING INFORMATION REVIEW AND DESKTOP MAPPING

3.1.1 National Wetlands Inventory (NWI)

There are 29 NWI mapped wetlands in the Project Area totaling approximately 33.8 acres (Appendix A: Figure 2). The mapped wetlands include 16 freshwater emergent wetlands (PEM1A, PEM1Af, PEM1B, PEM1C, PEM1F) totaling approximately 24.7 acres, and 13 riverine wetlands (R4SBC, R4SBCx, R5UBH) totaling approximately 9.1 acres. The mapped wetlands are primarily located along drainages throughout the Project Area.

3.1.2 National Hydrography Dataset (NHD)

There are 10 NHD-mapped stream or artificial path segments totaling approximately 4.2 miles, and one NHD-mapped waterbody that is 0.4 acre in the Project Area (Appendix A: Figure 2). The waterbody is located in the northern part of the Project Area and is classified as a perennial pond. The streams are mapped throughout the Project Area and generally align with the riverine wetlands in the NWI (see Section 3.1.1). The streams are all unnamed and are classified as intermittent except for an approximately 140-foot artificial path through the pond.

3.1.3 Public Waters Inventory (PWI)

There are no Public Waters mapped in the Project Area (Appendix A: Figure 2). Elk Creek is mapped immediately to the southeast of the Project Area, and Champeadan Creek is mapped approximately 0.5 mile north of the Project Area.

The approximate shoreland wetland protection zone for the public waters was determined based on the areas defined in ordinance by Rock County (see Section 1.3.5). A 300-foot buffer around the PWI watercourses was applied in the vicinity of the Project Area. Approximately 3.4 acres of the approximate shoreland wetland protection zone are located within the Project Area (Appendix A: Figure 2).

3.1.4 Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) and Flood Insurance Rate Map (FIRM)

FEMA NFHL data was not available for the Project Area (FEMA 2023). FEMA FIRM, Map Number 270642B, effective July 1, 1988, was reviewed and compared to the Project Area. Based on a review of the FIRM, approximately 18 acres of 100-year floodplain associated with Elk Creek is located in the southeast corner of the Project Area.

3.1.5 Soil Survey Geographic (SSURGO) Soils

Soils data for the Project Area were obtained from the USDA NRCS (NRCS 2022). This information was used to study the distribution of hydric soils within the Project Area. Soils were categorized according to the five hydric classes listed below based on the hydric rating of the soil series.

- Non-hydric – all soils series components rated as non-hydric
- Predominantly non-hydric – minority of soil components that are considered hydric accounting for 1 to 32 percent of the series
- Partially hydric – a mix of hydric and non-hydric soil components with hydric components accounting for 33 to 65 percent of the series
- Predominantly hydric – majority of soil components that are considered hydric accounting for 66 to 99 percent of the series
- Hydric – all soils series components rated as hydric

The soils in the Project Area are classified as non-hydric (42 percent of the Project Area), predominantly non-hydric (28 percent of the Project Area), predominantly hydric (23 percent of the Project Area), and hydric (7 percent of the

Project Area) (Appendix A: Figure 3). The hydric and predominantly hydric soils are generally found along the drainages in the Project Area.

3.1.6 Previous Reports

Two previous wetland delineation surveys have been completed for portions of the Project Area. HDR completed surveys in 2019 for the Elk Creek Solar Project, which included approximately 1,080 acres in the northwestern part of the current Project Area (HDR 2019a), and for the Elk Creek Solar 2 Project, which included approximately 513 acres in the southwestern part of the current Project Area (HDR 2019b). The HDR surveys identified 7 wetlands in the current Project Area and investigated an additional 50 locations that were determined to be non-wetlands.

The HDR Wetland Delineation Reports were submitted to the USACE and Rock County for boundary review. The USACE responses dated January 27, 2020 and June 3, 2020 state that they generally concur that the limits of aquatic resources were accurately identified and that those boundaries would generally be sufficient for permitting. Rock County also issued wetland boundary concurrence decisions for the reports on July 9, 2019 and August 21, 2019. The boundaries reviewed by USACE and LGU can generally be considered valid for five years.

3.1.7 Desktop Wetlands and Waters Mapping

Aerial photographs in combination with antecedent precipitation data from the Minnesota State Climatology Office (2023), MN DNR 2-foot elevation contours (MN DNR 2011), the NWI, and the Wetland Delineation Reports completed by HDR (HDR 2019a, HDR 2019b) were reviewed to identify potential wetlands and waters in the Project Area. Reviewed aerial photographs included images from July 4, 2008 (USDA FSA APFO 2008), September 13, 2015 (USDA FSA APFO 2015), September 29, 2017 (USDA FSA APFO 2017), July 11, 2019 (USDA FSA APFO 2019), and August 21, 2021 (USDA FSA APFO 2021). The antecedent precipitation review showed that all of the reviewed aerial photographs were taken during periods with normal antecedent precipitation.

The desktop data review found 19 potential wetlands and waters in the Project Area, totaling approximately 44 acres (Appendix A: Figure 2). Two of the potential wetlands and waters were identified in the Expansion Area that was not previously surveyed by HDR. The 17 remaining potential wetlands and waters were identified in the HDR Survey Area including 10 locations that HDR investigated and determined were not wetlands, and 7 locations that were delineated as wetlands by HDR.

3.2 WETLANDS AND WATERS SURVEY

The wetlands and waters field survey of the Project Area was conducted April 27 and 28, 2023, during a period with normal antecedent precipitation based on methods described in technical guidance (USACE and BWSR 2016) and data from the Minnesota State Climatology Office (2023). Antecedent precipitation data are presented in Table 2.

Each of the 19 desktop potential wetland and water areas in the Project Area were reviewed during the site visit. The seven wetlands delineated by HDR were reviewed and the boundaries were confirmed to be consistent with those mapped by HDR. Additionally, three streams were mapped within three of the wetlands previously delineated by HDR. One new wetland was also delineated in the Expansion Area at the location of the two desktop potential

wetland and waters areas. The ten remaining desktop potential wetlands and waters were verified to be non-wetlands as previously determined by HDR. A total of seven wetlands and three stream segments were identified and delineated in the Project Area at the completion of the field surveys. The delineated resources are described in detail in the following sections, and are depicted on Figure 4 in Appendix A.

Table 3. Antecedent Precipitation Analysis

Precipitation data for target wetland location:				
County: **Rock**	Township Number: **103N**	**Site visit dates:**		
Township Name: **Vienna**	Range Number: **44W**	**April 27-28, 2023**		
Nearest Community: **Magnolia**	Section Number: **34**			
Score using 1991-2020 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 2023**	second prior month: **March 2023**	third prior month: **February 2023**
estimated precipitation total for this location:		**1.21R**	**1.41R**	**0.98R**
there is a 30% chance this location will have less than:		2.27	0.87	0.50
there is a 30% chance this location will have more than:		3.02	1.62	0.95
type of month: dry normal wet		**dry**	**normal**	**wet**
monthly score		**3 * 1 = 3**	**2 * 2 = 4**	**1 * 3 = 3**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)		**10 (Normal)**		

3.2.1 Wetlands

The wetlands delineated in the Project Area include one Type 1, seasonally flooded basin wetland (PEMAf[1]), and six Type 2, wet meadow wetlands (PEMB, PEMBf, PEMBx) (Table 3).

Wetland WA004 was delineated within a drainage swale in the Expansion Area. The wetland had been cultivated the previous season and no vegetation was present at the time of the survey. One hydric soil indicator (A12: Thick Dark Surface), and three secondary wetland hydrology indicators (B6: Surface Soil Cracks, C9: Saturation Visible on Aerial Imagery, and D2: Geomorphic Position) were observed at wetland sample point WA004A. No hydric soil indicators and only one secondary wetland hydrology indicator (D2: Geomorphic Position) were observed at upland sample point WA004B. Wetland determination data forms and photographs are provided in Appendix B

Wetlands WA001, WA005, WA009, and WA013 were observed in uncultivated drainageways, and the dominant vegetation was reed canary grass (*Phalaris arundinacea*). Wetland WA011 was observed to be a broad depression in a cultivated field with no vegetation present at the time of the survey. Wetland WA012 was observed in a roadside ditch and the dominant vegetation was reed canary grass. New wetland determination data forms were not recorded for the wetlands previously identified by HDR (WA001, WA005, WA009, WA011, WA012, and WA013) because these boundaries have been reviewed and approved by USACE and Rock County (see Section 3.1.6), but photographs of these wetlands are provided in Appendix B.

[1] A key to the Cowardin wetland classification systems is provided in Appendix D.

Table 4. Delineated Wetlands in the Project Area

Wetland ID[1]	Wetland Classification[2]		Area (acres)	Regulatory Jurisdiction			Figure 4 Grid ID
	Circular 39	Cowardin Class		USACE	MN WCA	MN Public Water	
WA001 (Wetland 5)	Type 2	PEMB	3.373	Yes	Yes	No	D
WA004	Type 1	PEMAf	0.355	No	Yes	No	D
WA005 (Wetland 3)	Type 2	PEMB	16.553	Yes	Yes	No	D
WA009 (Wetland 1)	Type 2	PEMB	6.739	Yes	Yes	No	B
WA011 (Wetland 2)	Type 2	PEMBf	1.223	No	Yes	No	B
WA012 (Wetland 4)	Type 2	PEMBx	0.401	No	No	No	C
WA013 (Wetland 1, Wetland 6)	Type 2	PEMBx	1.914	No	Yes	No	C

[1] HDR report ID in parenthesis.
[2] See Appendix D for a key to the Circular 39 and Cowardin wetland classification system.

3.2.2 Streams

Three stream segments were documented in the Project Area including one segment of intermittent stream (R4SBC) and two segments of perennial stream (R2UBF, R2UBFx) (Table 4). Stream segment SA001 was delineated in wetland WA001 in the southwestern part of the Project Area. This stream is an unnamed tributary to Elk Creek and was classified as intermittent. Stream segments SA002 and SA003 were delineated in wetlands WA005 and WA009, respectively, in the south-central part of the Project Area. These stream segments are an unnamed tributary to Elk Creek and were classified as perennial. Stream data forms and photographs are provided in Appendix B.

Table 5. Delineated Streams in the Project Area

Stream ID	Flow Regime	Cowardin Class[1]	Stream Name	Average Width (feet)	Surveyed Length (feet)	Surveyed Area (acres)	Regulatory Jurisdiction	
							USACE	MN Public Water
SA001	Intermittent	R4SBC	--	7-10	1,745	0.336	Yes	No
SA002	Perennial	R2UBF	--	9	6,557	1.558	Yes	No
SA003	Perennial	R2UBFx	--	9	2,824	0.616	Yes	No

3.2.3 Non-Wetland Areas

During the field surveys nine sample points that did not meet wetland determination criteria were recorded at desktop potential wetlands and waters locations. The nine non-wetland features were reviewed for wetland signatures in each of the aerial photographs from the following five years with normal antecedent precipitation: July 4, 2008 (USDA FSA APFO 2008), September 13, 2015 (USDA FSA APFO 2015), September 29, 2017 (USDA FSA APFO 2017), July 11, 2019 (USDA FSA APFO 2019), and August 21, 2021 (USDA FSA APFO 2021). The locations of non-wetland sample points are included in Appendix A, Figure 4, and the results of the aerial photograph review are summarized in Table 5. Wetland determination data forms, reviewed historical aerial photographs with antecedent precipitation worksheets, and site visit photographs for non-wetland sample points are provided in Appendix C.

Sample points NWA003A, NWA006A, NWA007A, NWA015A, and NWA016A exhibited a wetland signature in less than 50 percent of the reviewed aerial photographs, which supports the field determination that wetland hydrology is not present in most normal years at these locations. The four remaining areas exhibited a wetland signature in more than 50 percent of reviewed aerial photographs, but field observations did not support a wetland determination at these locations. Sample points NWA002A, NWA014A, and NWA017A each exhibited a wetland signature in 3 of the 5 reviewed historical aerial photographs, but no hydric soil indicators were observed at any of these locations during the field survey. Sample points NWA014A and NWA017A did meet the wetland hydrology indicator with two secondary indicators (saturation visible on aerial imagery [C9] and geomorphic position [D2]). Based on the field observations, the signatures observed in the aerial photographs are likely the result of conditions other than prolonged soil saturation such as erosion. Sample point NWA010A was not cropped in any of the reviewed aerial photographs. At the time of the site visit the vegetation at this location was dominated by hairy crab grass (*Digitaria sanguinalis*) and flat-stem blue grass (*Poa compressa*). Based on the prevalence of upland vegetation, soils were not observed at this location.

Table 6. Observed Wetland Signatures in Non-Wetland Areas in Normal Years

Non-Wetland Sample Point	Photo Interpretation[1]					# of Years with Wet Signatures	% of Years with Wet Signatures[2]
	July 4, 2008	September 13, 2015	September 29, 2017	July 11, 2019	August 21, 2021		
NWA002A	NV	DO	CS	NV	CS	3	60%
NWA003A	NV	NV	CS	SS	NV	2	40%
NWA006A	SS	NV	NV	SS	NV	2	40%
NWA007A	NV	NV	NV	SS	NV	1	20%
NWA010A	NC	NC	NC	NC	NC	5	100%
NWA014A	CS	NV	CS	CS	NV	3	60%
NWA015A	NV	NV	CS	NV	NV	1	20%
NWA016A	CS	NV	NV	NV	NV	1	20%
NWA017A	NV	CS	CS	SS	NV	3	60%

3.3 REGULATORY REVIEW

3.3.1 U.S. Army Corps of Engineers

Each of the identified wetlands and waters in the Project Area was reviewed for potential USACE jurisdiction and an initial jurisdictional determination was recommended (Table 3 and Table 4). An assessment of WOTUS criteria and potential USACE jurisdiction under Section 404 of the CWA found that streams SA001, SA002, and SA003 are relatively permanent tributaries. Therefore, these streams and their abutting wetlands WA001, WA005, and WA009 are likely WOTUS. Wetlands WA004, WA011, WA012, and WA013 do not appear to have a continuous surface connection to a regulated waterway, so they may not be considered WOTUS. Only the USACE can make the final determination on their regulatory jurisdiction of wetlands and waters. The USACE jurisdictional recommendations for each feature are depicted on Figure 5 in Appendix A.

3.3.2 Minnesota Wetland Conservation Act

Six of the seven wetlands identified in the Project Area would likely be regulated under the WCA (Table 3 and Table 4). Project activities affecting these wetlands would require approval from the LGU. Wetland WA012 appears to be an “incidental wetland” within a roadside ditch excavated in uplands, which is a category of wetlands that are not regulated under the WCA. The WCA jurisdictional recommendations for each feature are depicted on Figure 5 in Appendix A.

Certain activities are exempt from the wetland replacement provisions of WCA. Tetra Tech reviewed the WCA de minimis exemption standards (MN Rules 8420.0420, Subp. 8) and found that up to 2,000 square-feet of Type 1 or Type 2 wetland outside of the shoreland zone may be permanently impacted by the Project to qualify for the de minimis exemption and would not require a replacement plan for wetlands.

A portion of wetland WA005 lies within the floodplain of Elk Creek; therefore, this area may be considered to be within the shoreland zone. In the shoreland zone the de minimis exemption for permanent impacts to Type 1 and Type 2 wetlands is reduced to 400 square feet. The de minimis exemption amount is determined by considering all wetland impacts associated with a project. If the impacted wetlands have more than one de minimis amount, the exemption amount for the entire project is the smallest of the applicable thresholds. If the total project impacts exceed the relevant de minimis exemption amount, the exemption is no longer applicable, and all wetland impacts associated with the project are subject to the replacement plan provisions of WCA (8420.0500 to 8420.0630).

3.3.3 Minnesota Department of Natural Resources

None of the delineated wetlands in the Project Area align with Public Waters identified in the PWI (Section 3.1.3). Therefore, the Project will not require a Public Waters Work Permit from the MN DNR.

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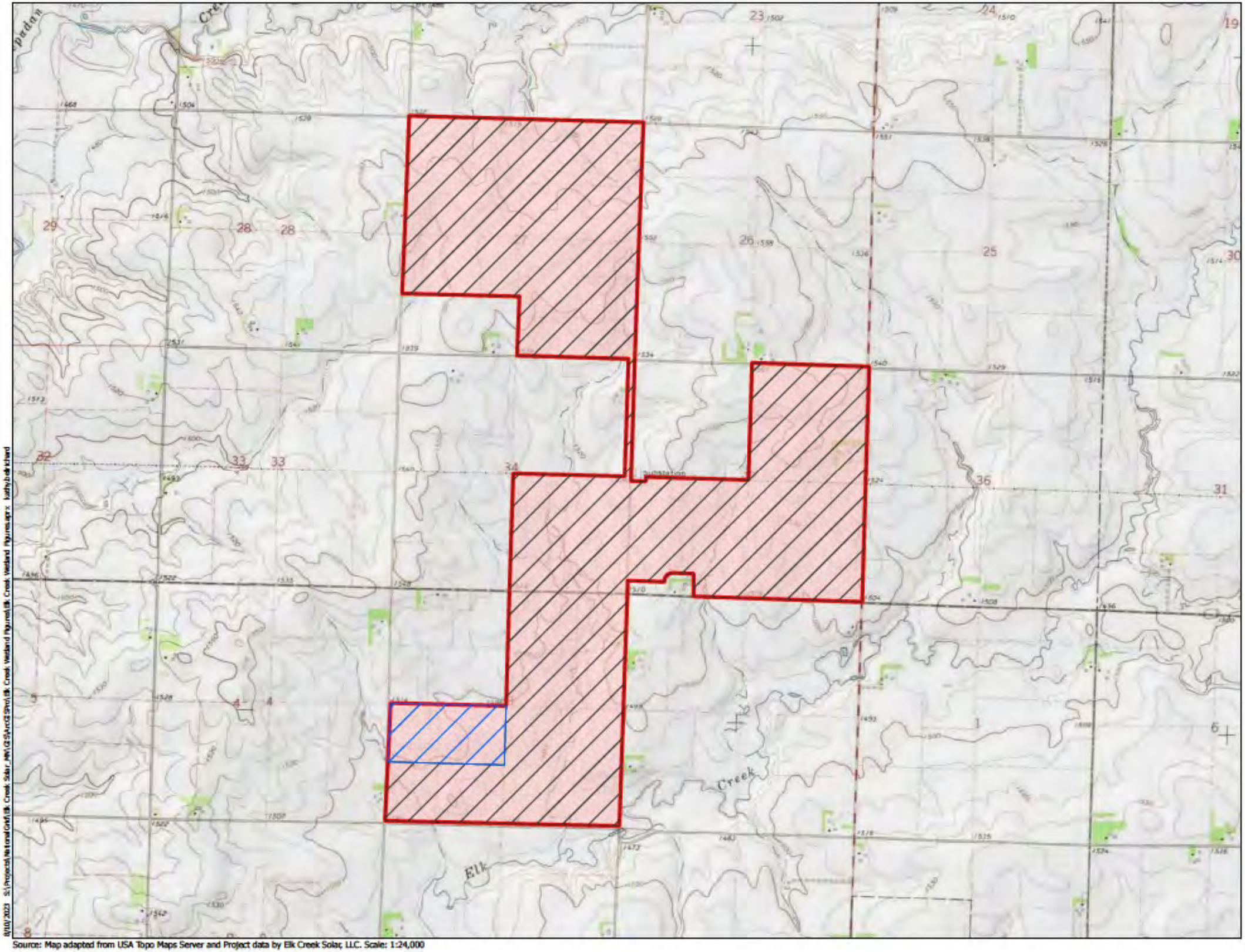
APPENDIX A: FIGURES 1 – 5



Project Area
Expansion Area
HDR Survey Area

0 0.25 0.5 Mile

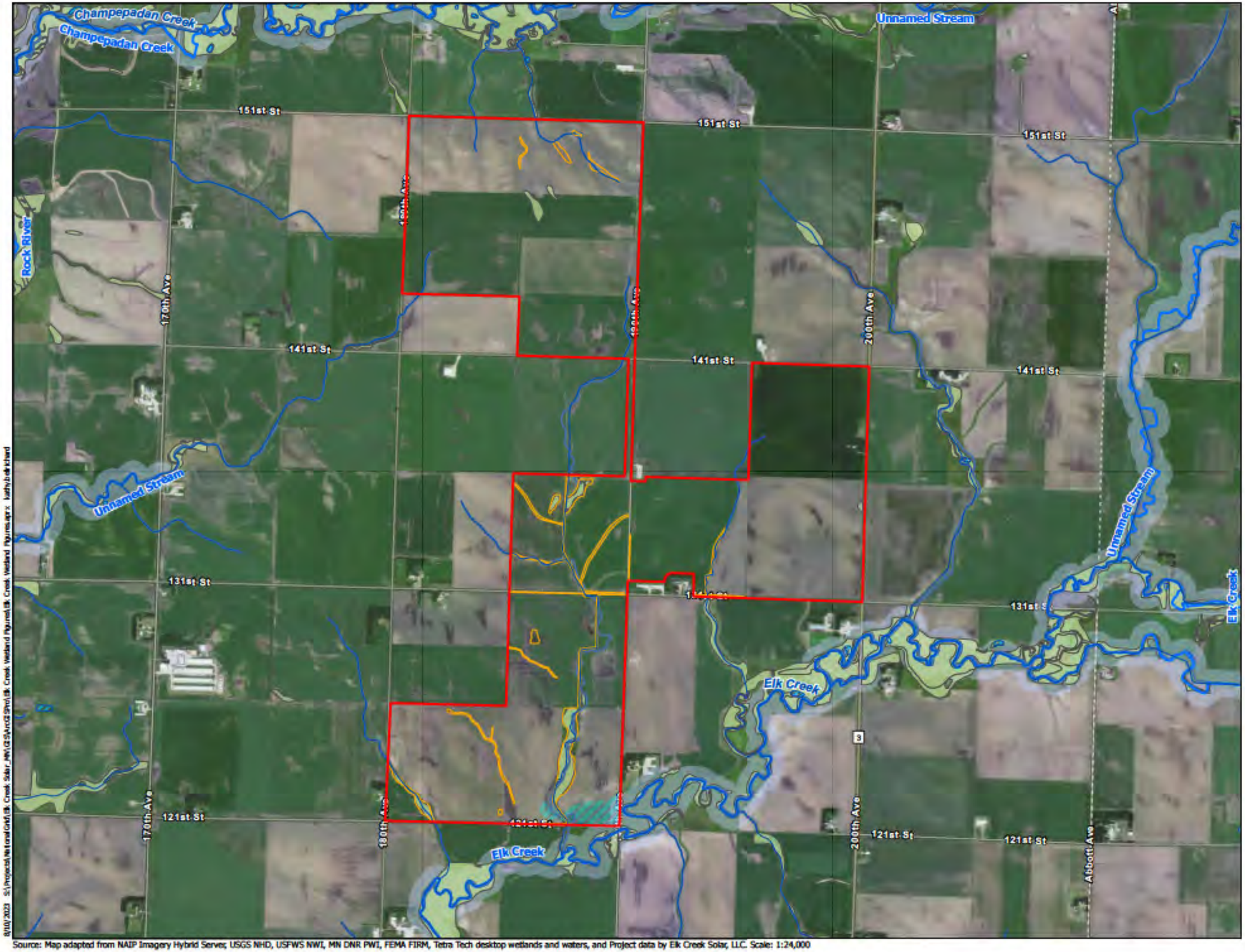
Figure 1
Project Area Location

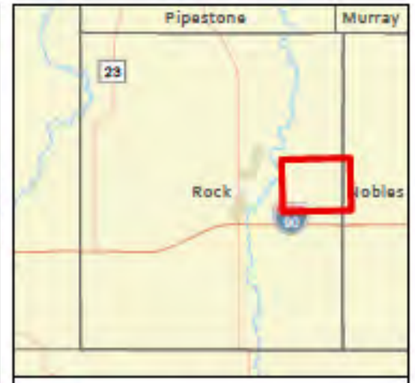
Elk Creek Solar
Rock County, Minnesota

TETRA TECH

8/10/2023 S:\Projects\National\Gis\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures\Elk Creek Wetland Figures.aprx kathyb.eckhard

Source: Map adapted from USA Topo Maps Server and Project data by Elk Creek Solar, LLC. Scale: 1:24,000





Project Area

NWI Wetlands

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

NHD Classification

- Stream/River
- Lake/Pond

Public Waters Inventory

- Watercourse
- Approximate Shoreland Zone (300 feet from watercourses)

FEMA Floodplain

- Approximate 100-Year Floodplain

Desktop Mapping

- Desktop Potential Wetlands and Waters

0 0.25 0.5 Mile

Figure 2
Desktop Wetlands and Waters Mapping

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from NAIP Imagery Hybrid Server, USGS NHD, USFWS NWI, MN DNR PWI, FEMA FIRM, Tetra Tech desktop wetlands and waters, and Project data by Elk Creek Solar, LLC. Scale: 1:24,000

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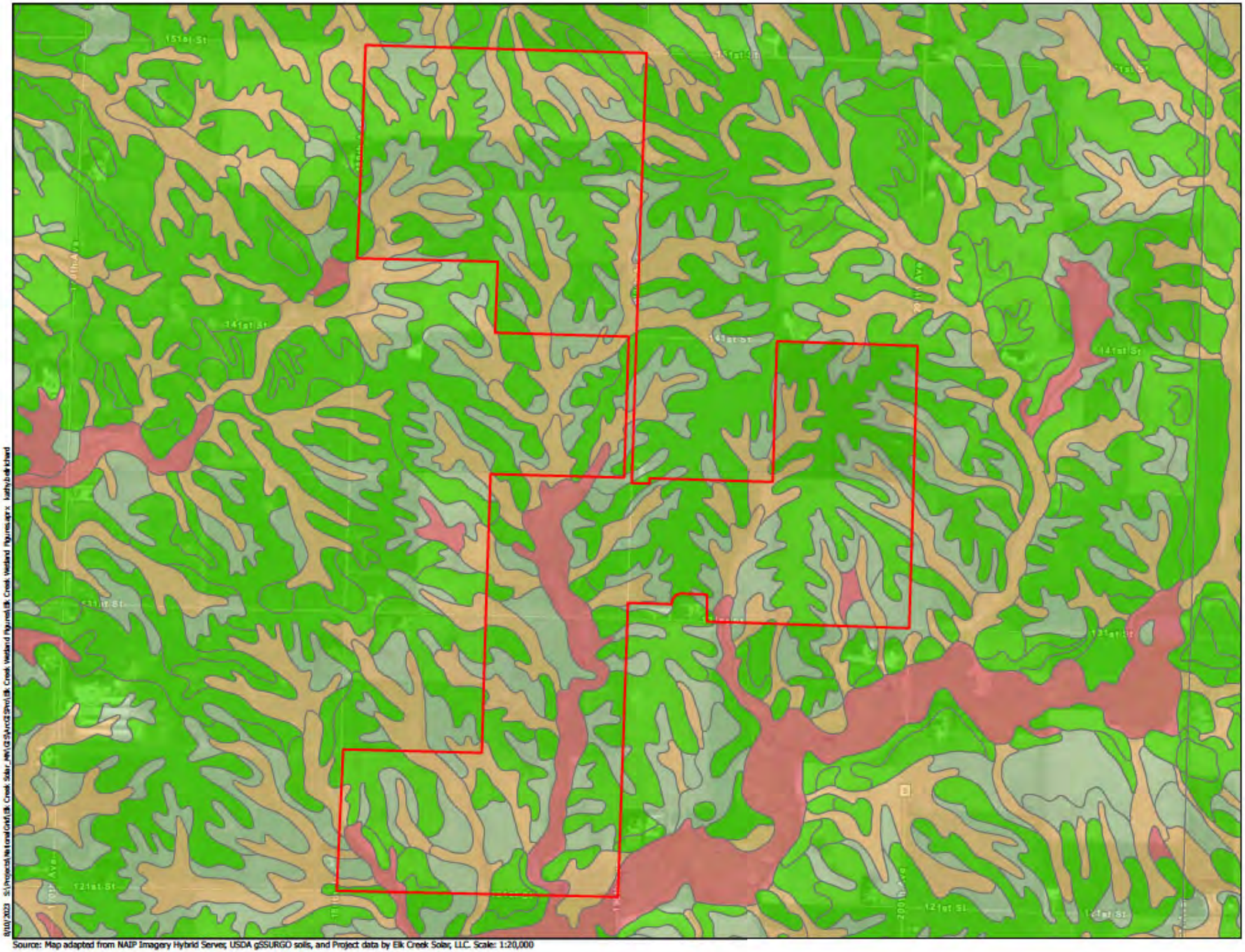

Source: Map adapted from NAIP Imagery Hybrid Server, USDA gSSURGO soils, and Project data by Elk Creek Solar, LLC. Scale: 1:20,000

Figure 3
SSURGO Soils

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

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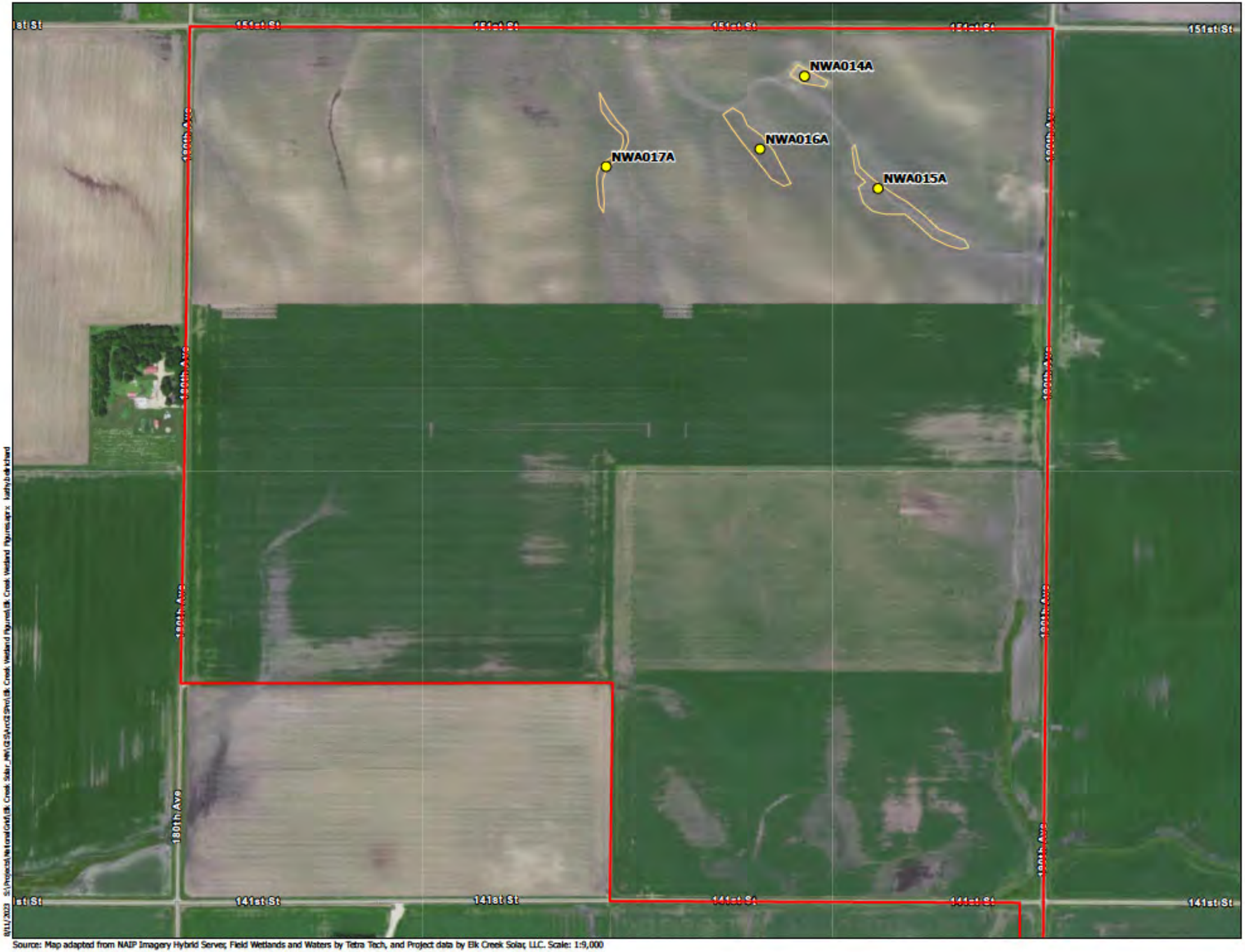

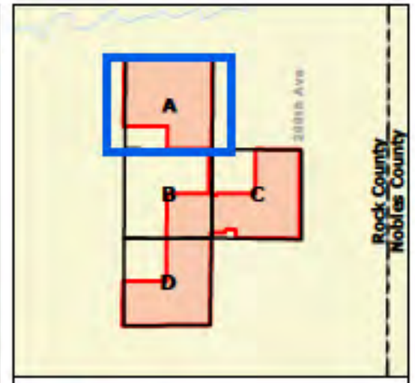

Project Area
Non-Wetland Sample Point
Delineated Wetland
Delineated Stream
Desktop Potential Wetlands and Waters

0 500 1,000 Feet

Figure 4-A
Wetlands and Waters Survey Results

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from NAIP Imagery Hybrid Server, Field Wetlands and Waters by Tetra Tech, and Project data by Elk Creek Solar, LLC. Scale: 1:9,000

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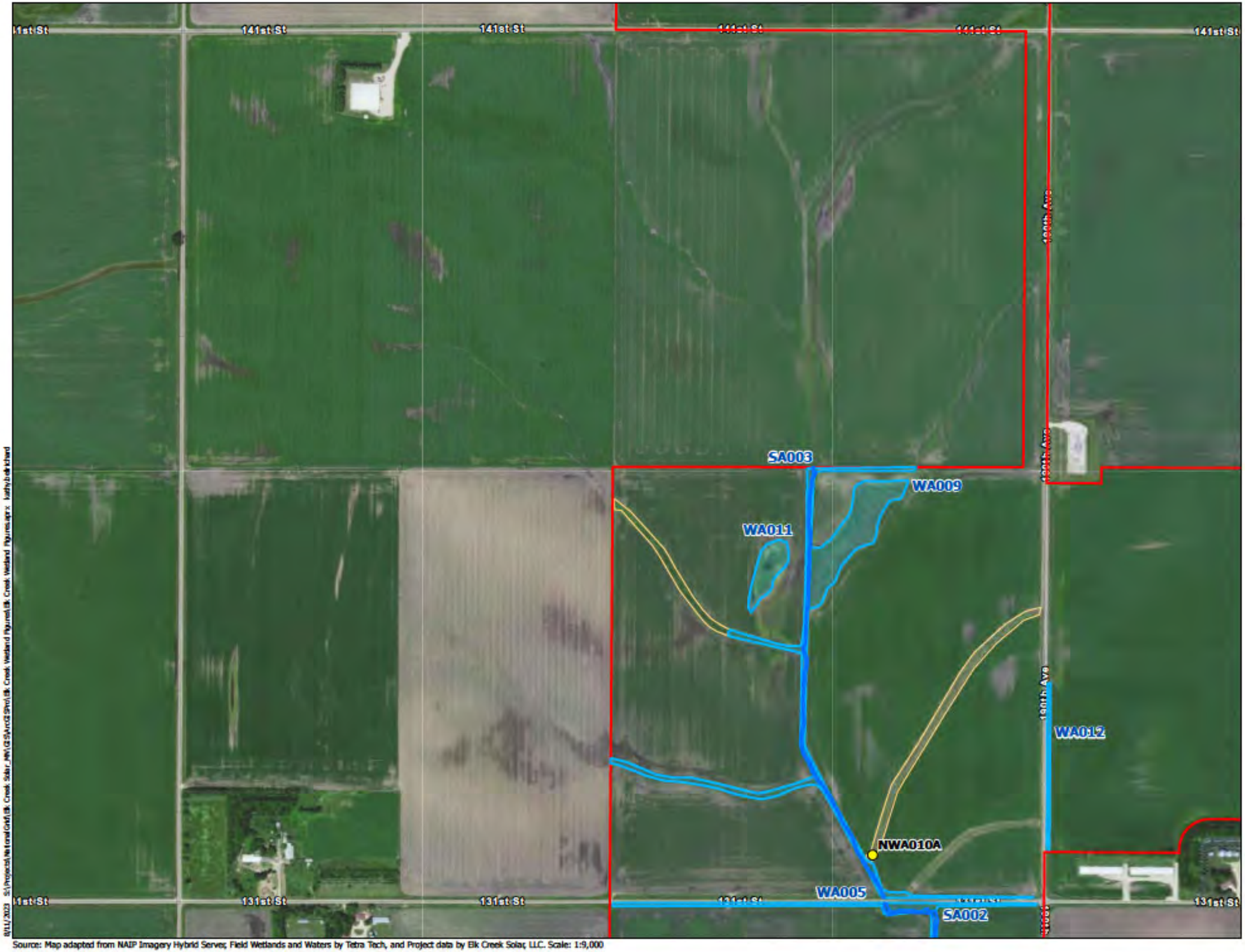

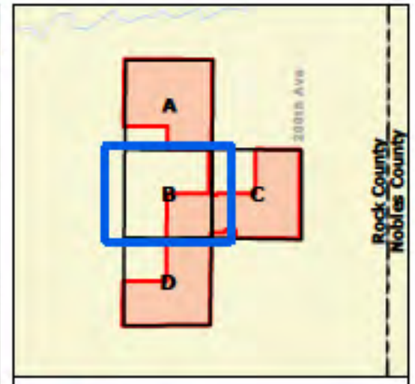

Project Area
Non-Wetland Sample Point
Delineated Wetland
Delineated Stream
Desktop Potential Wetlands and Waters

0 500 1,000 Feet

Figure 4-B
Wetlands and Waters Survey Results

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from NAIP Imagery Hybrid Server, Field Wetlands and Waters by Tetra Tech, and Project data by Elk Creek Solar, LLC. Scale: 1:9,000

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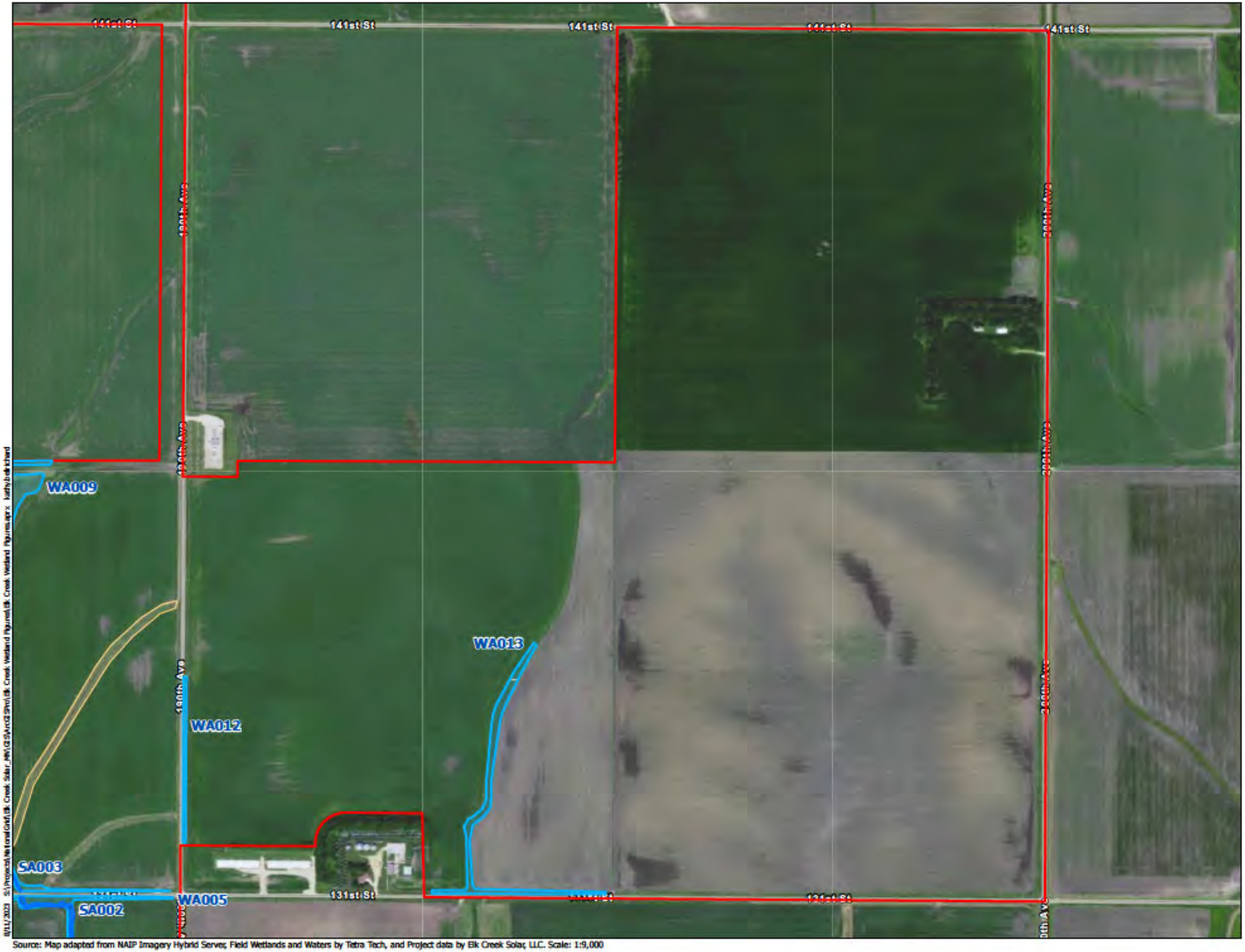

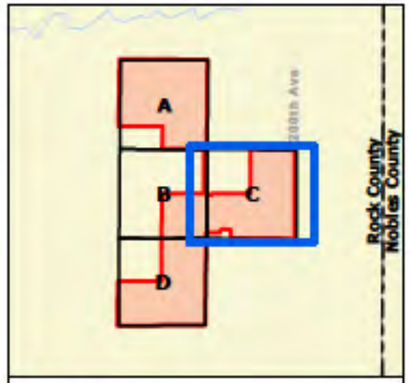

Project Area
Non-Wetland Sample Point
Delineated Wetland
Delineated Stream
Desktop Potential Wetlands and Waters

0 500 1,000 Feet

Figure 4-C
Wetlands and Waters Survey Results

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from NAIP Imagery Hybrid Server, Field Wetlands and Waters by Tetra Tech, and Project data by Elk Creek Solar, LLC. Scale: 1:9,000

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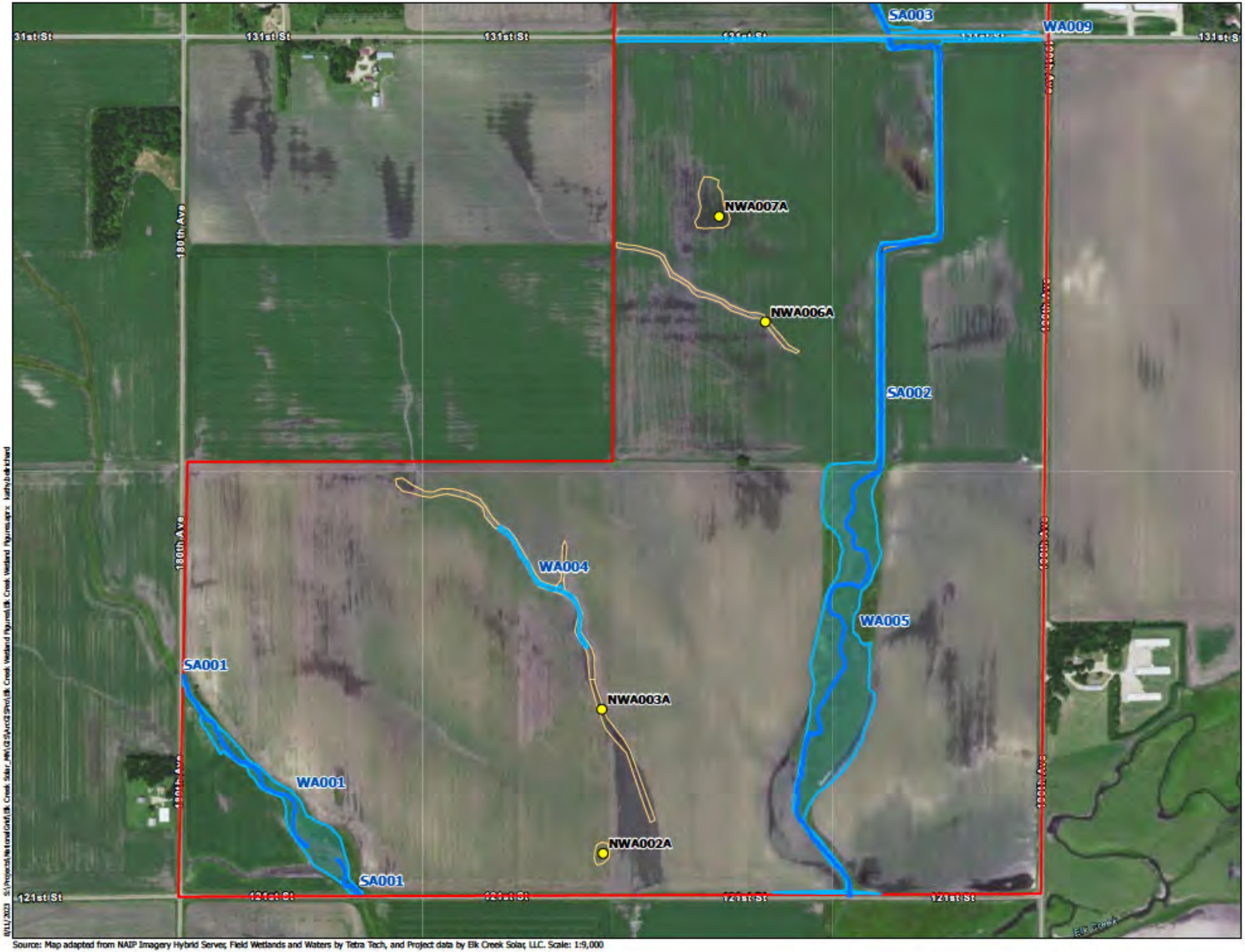

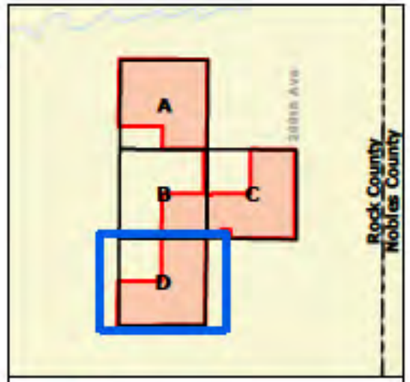

- Project Area
- Non-Wetland Sample Point
- Delineated Wetland
- Delineated Stream
- Desktop Potential Wetlands and Waters

0 500 1,000 Feet

Figure 4-D
Wetlands and Waters Survey Results

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from NAIP Imagery Hybrid Server, Field Wetlands and Waters by Tetra Tech, and Project data by Elk Creek Solar, LLC. Scale: 1:9,000

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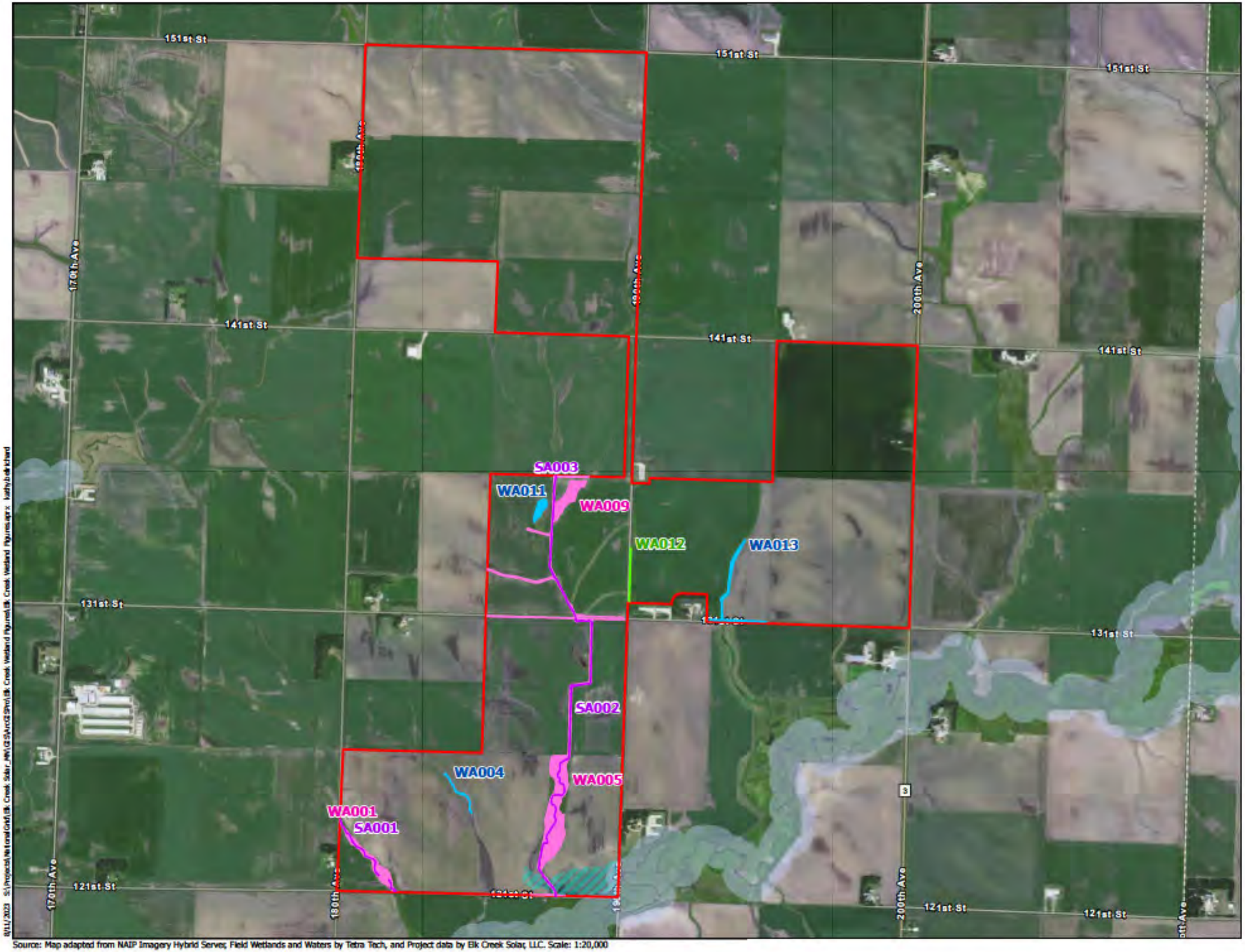

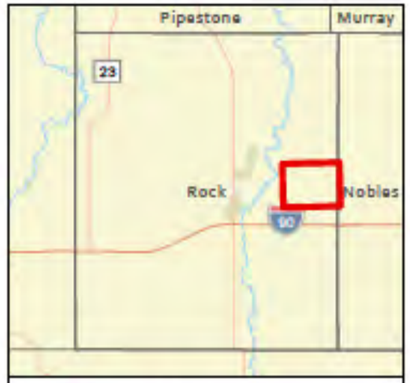

Project Area

Approximate Shoreland Zone (300 feet from watercourses)

Approximate 100-Year Floodplain

Recommended Regulatory Jurisdiction*

- USACE
- USACE and LGU
- LGU
- Not Regulated

* Suggestions regarding the jurisdiction of wetlands and waters are preliminary and must be verified by the USACE and LGU.

0 0.25 0.5 Mile

Figure 5
Wetlands and Waters Jurisdiction

Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from NAIP Imagery Hybrid Server; Field Wetlands and Waters by Tetra Tech, and Project data by Elk Creek Solar, LLC. Scale: 1:20,000

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APPENDIX B: WETLAND DETERMINATION DATA FORMS AND PHOTOGRAPHS

Wetland ID

WA001

Stream ID

SA001

Project Name:	Survey Date:	Stream ID:
Elk Creek Solar	04/27/2023	SA001
Stream Classification:	**Stream Flow Rate:**	**Stream Water Clarity:**
R4SBC	Low	Clear
Average Width from Top of Bank:	**Average Depth from Top of Bank:**	**Average Water Depth:**
7-10 feet	4 feet	12 Inches

Stream Inorganic Substrate Components:

- ☑ Clay
- ☑ Silt
- ☑ Sand
- ☑ Gravel (0.1"-2.5")
- ☑ Cobble (2.5"-10")
- ☐ Boulder (>10")
- ☐ Bedrock
- ☐ Riprap/Concrete

Stream Organic Substrate Components:

- ☑ Detritus (sticks, wood, coarse plant material)
- ☑ Muck-Mud (very fine organic, black)
- ☑ Marl (grey, shell fragments)

Stream Characteristics Observed:

- ☑ Bed
- ☑ Bank
- ☐ Natural line impressed on the bank
- ☑ Shelving
- ☐ Changes in the character of soil
- ☑ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☑ Vegetation matted down, bent, or absent
- ☐ Leaf litter disturbed or washed away
- ☑ Sediment deposition
- ☐ Water staining
- ☐ Presence of wrack line
- ☑ Sediment sorting
- ☐ Scour
- ☑ Abrupt change in plant community
- ☐ Fish
- ☐ Crayfish or Crayfish Burrows
- ☐ Tadpoles

Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:3,000

Overview of wetland WA001 and stream SA001.

Direction: Southeast	Photo ID: f_photo-20230427-183819.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA001

Overview of wetland WA001.

Direction: Southeast	Photo ID: f_photo-20230427-190436.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA001

Overview of wetland WA001.

Direction: Northwest	Photo ID: f_photo-20230427-190503.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA001

Upstream Photograph of SA001.

Direction: Northwest	Photo ID:	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: SA001

Downstream Photograph of SA001.

Direction: Southeast	Photo ID:	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: SA001

Upstream Photograph of SA001.

Direction: North	Photo ID:	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: SA001

Downstream Photograph of SA001.		
Direction: Southeast	Photo ID:	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: SA001

Wetland ID

WA004

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/27/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: WA004A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.3 T102N, R33W

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

Slope (%): 2 | Lat: 43.6642 | Long: -96.10382 | Datum: WGS84

Soil Map Unit Name: Whitewood silty clay loam, 0 to 2 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes

Hydric Soil Present? Yes | **Is the sampled area within a wetland?** Yes

Wetland Hydrology Present? Yes | If yes, optional wetland site ID: WA004

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? Yes

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: WA004A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-25	10YR 2/1	100					Clay	
25-33	2.5Y 5/2	93	2.5Y 5/6	7	C	PL/M	Sandy Clay Loam	Prominent

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **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)
- X 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*:

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*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

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)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (Inches): ___
Water Table Present?	Yes	___	No	X	Depth (Inches): ___
Saturation Present? (Includes capillary fringe)	Yes	___	No	X	Depth (Inches): ___

Wetland Hydrology Present? Yes

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/27/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: WA004B

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.3 T102N, R33W

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

Slope (%): 2 | Lat: 43.66411 | Long: -96.10372 | Datum: WGS84

Soil Map Unit Name: Whitewood silty clay loam, 0 to 2 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? No | Is the sampled area within a wetland? No

Wetland Hydrology Present? No | If yes, optional wetland site ID: WA004

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: WA004B

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-26	10YR 2/1	100					Clay	
26-32	2.5Y 4/4	90	2.5Y 5/1	8	D	M	Clay Some Gravel	
			10YR 4/6	2	C	PL		Distinct

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

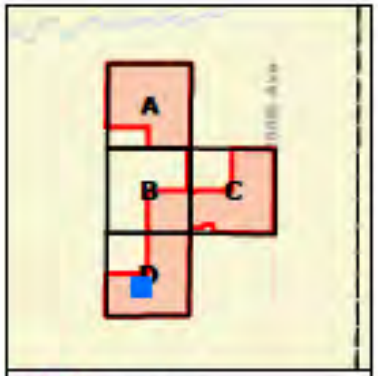
Field Observations:

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? No

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

Remarks:



Project Area

Wetland Survey

- Wetland Sample Plot
- Delineated Wetland WA004
- Other Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

0 50 100 150 200 Feet

Wetland ID
WA004

Wetland Delineation
Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:2,000

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Overview of wetland sample point WA004A.

Direction: Northwest	Photo ID: delln_photo-20230427-213510.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA004

Overview of upland sample point WA004B.

Direction: Southeast	Photo ID: delln_photo-20230427-212351.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA004

Overview of wetland WA004.		
Direction: Northwest	Photo ID: f_photo-20230427-214444.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA004

Wetland ID

WA005

Stream ID

SA002

Project Name:	Survey Date:	Stream ID:
Elk Creek Solar	04/27/2023	SA002
Stream Classification:	**Stream Flow Rate:**	**Stream Water Clarity:**
R2UBF	Moderate	Clear
Average Width from Top of Bank:	**Average Depth from Top of Bank:**	**Average Water Depth:**
9 feet	3 feet	18 Inches

Stream Inorganic Substrate Components:

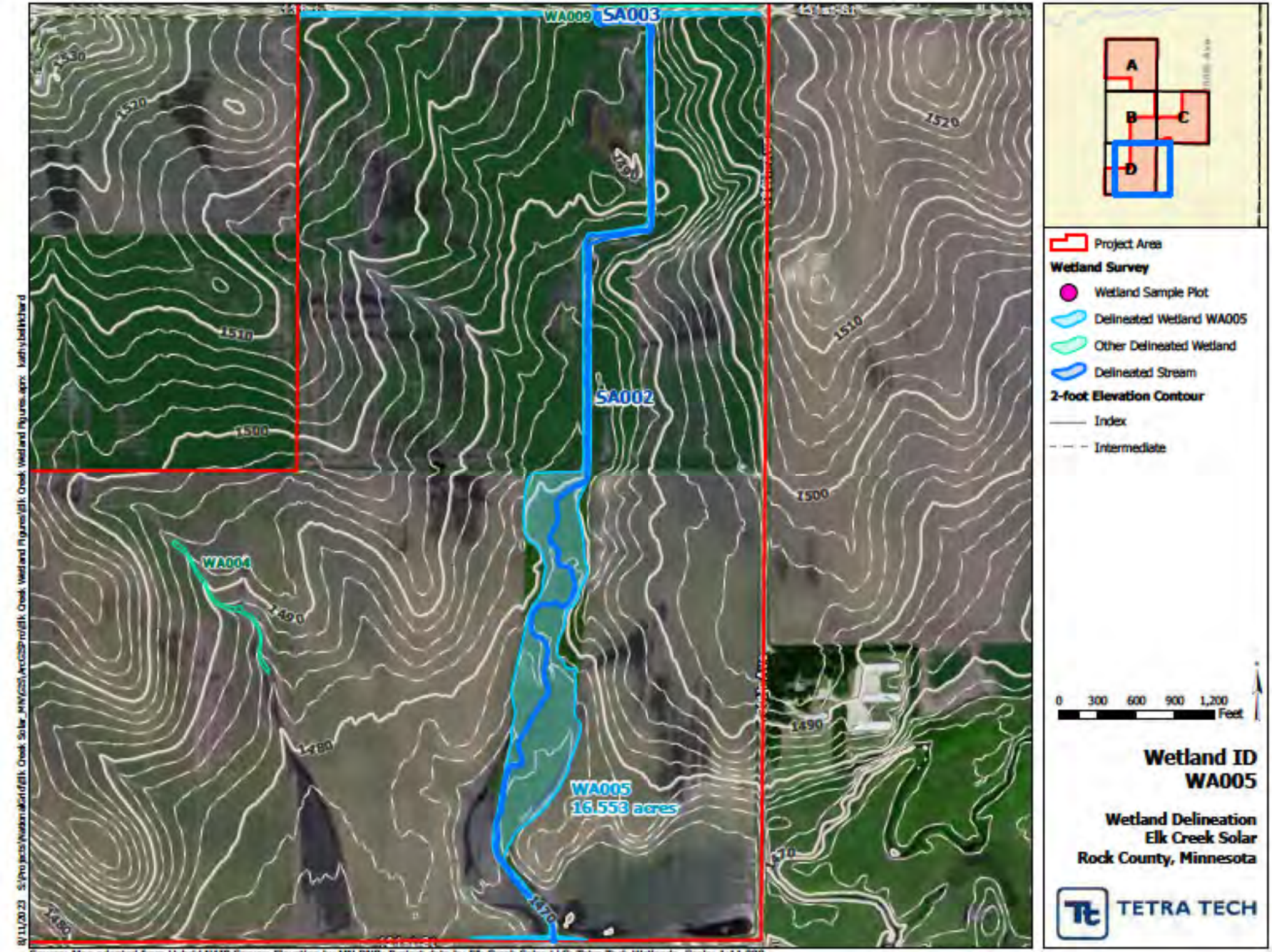
- ☐ Clay
- ☑ Silt
- ☑ Sand
- ☑ Gravel (0.1"-2.5")
- ☐ Cobble (2.5"-10")
- ☐ Boulder (>10")
- ☐ Bedrock
- ☐ Riprap/Concrete

Stream Organic Substrate Components:

- ☑ Detritus (sticks, wood, coarse plant material)
- ☑ Muck-Mud (very fine organic, black)
- ☐ Marl (grey, shell fragments)

Stream Characteristics Observed:

- ☑ Bed
- ☑ Bank
- ☑ Natural line impressed on the bank
- ☐ Shelving
- ☐ Changes in the character of soil
- ☑ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☑ Vegetation matted down, bent, or absent
- ☐ Leaf litter disturbed or washed away
- ☐ Sediment deposition
- ☐ Water staining
- ☐ Presence of wrack line
- ☑ Sediment sorting
- ☐ Scour
- ☐ Abrupt change in plant community
- ☐ Fish
- ☐ Crayfish or Crayfish Burrows
- ☐ Tadpoles



Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:11,000

Overview of wetland WA005.		
Direction: South	Photo ID: f_photo-20230427-224901.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA005

Overview of wetland WA005.		
Direction: North	Photo ID: f_photo-20230427-224922.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA005

Overview of wetland WA005 and stream SA002.

Direction: South	Photo ID: f_photo-20230427-225058.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA005

Overview of wetland WA005.

Direction: Northeast	Photo ID: f_photo-20230427-225959.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: WA005

Upstream Photograph of SA002.

Direction: Northeast	Photo ID:	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: SA002

Downstream Photograph of SA002.

Direction: Southwest	Photo ID:	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: SA002

Wetland ID

WA009

Stream ID

SA003

Project Name:	Survey Date:	Stream ID:
Elk Creek Solar	04/28/2023	SA003
Stream Classification:	**Stream Flow Rate:**	**Stream Water Clarity:**
R2UBFx	Low	Clear
Average Width from Top of Bank:	**Average Depth from Top of Bank:**	**Average Water Depth:**
9 feet	3 feet	18 Inches

Stream Inorganic Substrate Components:

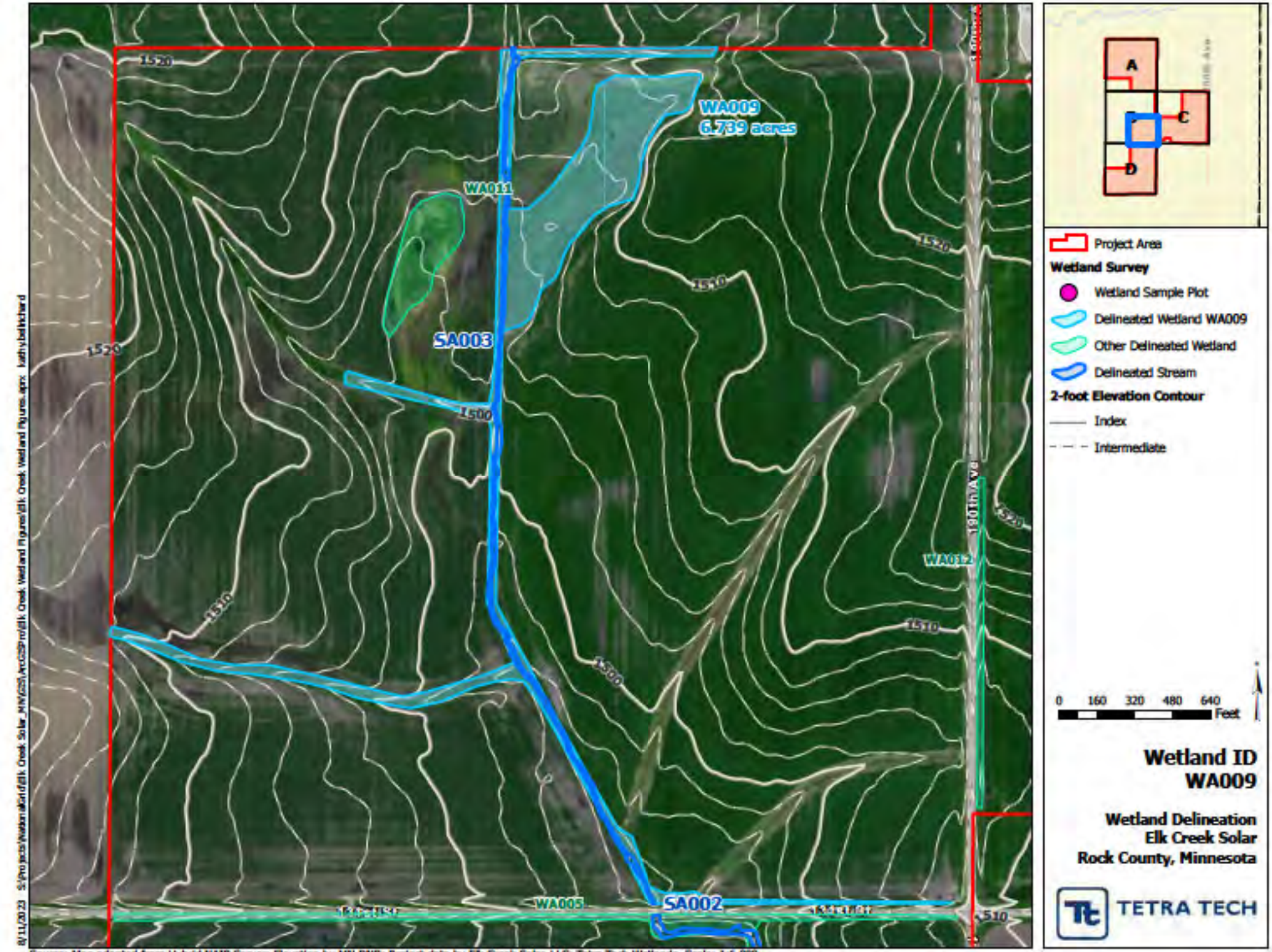
- ☐ Clay
- ☑ Silt
- ☑ Sand
- ☑ Gravel (0.1"-2.5")
- ☐ Cobble (2.5"-10")
- ☐ Boulder (>10")
- ☐ Bedrock
- ☐ Riprap/Concrete

Stream Organic Substrate Components:

- ☐ Detritus (sticks, wood, coarse plant material)
- ☐ Muck-Mud (very fine organic, black)
- ☐ Marl (grey, shell fragments)

Stream Characteristics Observed:

- ☑ Bed
- ☑ Bank
- ☐ Natural line impressed on the bank
- ☐ Shelving
- ☐ Changes in the character of soil
- ☐ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☑ Vegetation matted down, bent, or absent
- ☐ Leaf litter disturbed or washed away
- ☑ Sediment deposition
- ☐ Water staining
- ☐ Presence of wrack line
- ☑ Sediment sorting
- ☐ Scour
- ☐ Abrupt change in plant community
- ☐ Fish
- ☐ Crayfish or Crayfish Burrows
- ☐ Tadpoles



Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:6,000

Overview of wetland WA009 and stream SA003.

Direction: North	Photo ID: f_photo-20230428-123918.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA009

Overview of wetland WA009.

Direction: West	Photo ID: f_photo-20230428-125606.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA009

Overview of wetland WA009.

Direction: West	Photo ID: f_photo-20230428-130804.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA009

Overview of wetland WA009.

Direction: Northeast	Photo ID: f_photo-20230428-131402.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA009

Upstream Photograph of SA003.

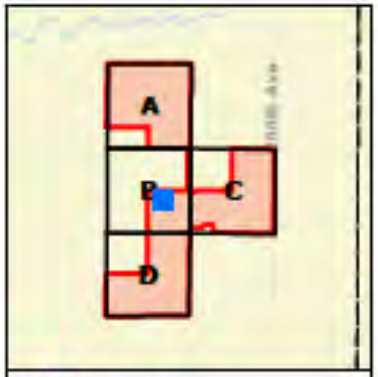
Direction: North	Photo ID:	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: SA003

Downstream Photograph of SA003.

Direction: Southeast	Photo ID:	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: SA003

Wetland ID

WA011



Project Area

Wetland Survey

- Wetland Sample Plot
- Delineated Wetland WA011
- Other Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

0 40 80 120 160 Feet

Wetland ID WA011

Wetland Delineation
Elk Creek Solar
Rock County, Minnesota

TETRA TECH

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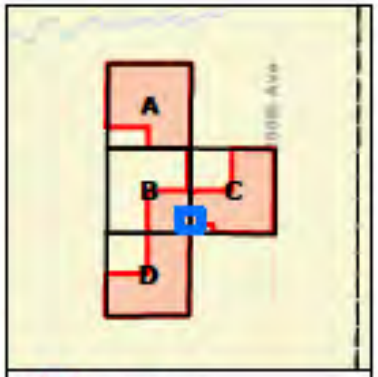
Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:1,500

Overview of wetland WA011.		
Direction: Southwest	Photo ID: f_photo-20230428-132457.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA011

Wetland ID

WA012



Project Area

Wetland Survey

Wetland Sample Plot

Delineated Wetland WA012

Other Delineated Wetland

Delineated Stream

2-foot Elevation Contour

Index

Intermediate

0 60 120 180 240 Feet

Wetland ID
WA012

Wetland Delineation
Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:2,500

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Overview of wetland WA012.

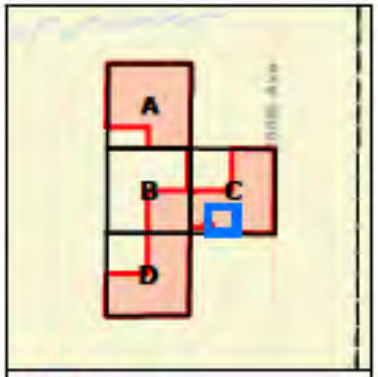
Direction: North	Photo ID: f_photo-20230428-140653.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA012

Overview of wetland WA012.

Direction: South	Photo ID: f_photo-20230428-140708.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA012

Wetland ID

WA013



Project Area

Wetland Survey

Wetland Sample Plot

Delineated Wetland WA013

Other Delineated Wetland

Delineated Stream

2-foot Elevation Contour

Index

Intermediate

0 90 180 270 360 Feet

Wetland ID
WA013

Wetland Delineation
Elk Creek Solar
Rock County, Minnesota

TETRA TECH

Source: Map adapted from Hybrid NAIP Server; Elevation by MN DNR; Project data by Elk Creek Solar, LLC; Tetra Tech Wetlands. Scale: 1:3,500

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Overview of wetland WA013.		
Direction: North	Photo ID: f_photo-20230428-143434.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA013

Overview of wetland WA013.		
Direction: East	Photo ID: f_photo-20230428-143912.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: WA013

APPENDIX C: OFFSITE HYDROLOGY REVIEW OF NON-WETLAND AREAS

Non-Wetland ID

NWA002

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/27/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA002A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.3 T102N, R44W

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

Slope (%): 0 | Lat: 43.66072 | Long: -96.10342 | Datum: WGS84

Soil Map Unit Name: Graceville silty clay loam, 0 to 2 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? No | **Is the sampled area within a wetland?** **No**

Wetland Hydrology Present? No | If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA002A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-22	10YR 2/1	100					Clay Loam	
22-31	10YR 4/3	100					Clay	

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

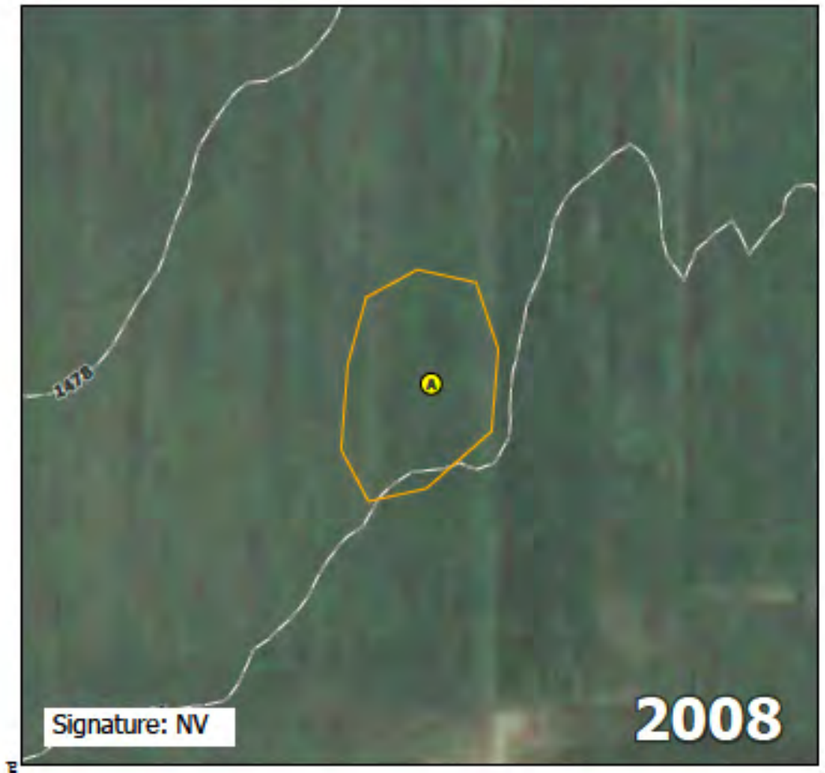
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

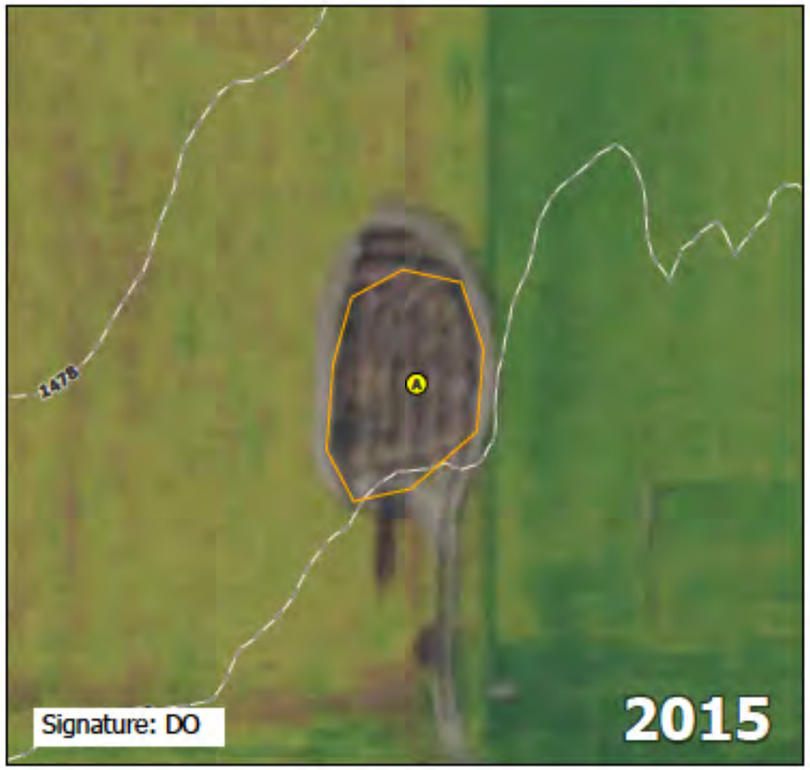
Wetland Hydrology Present? No

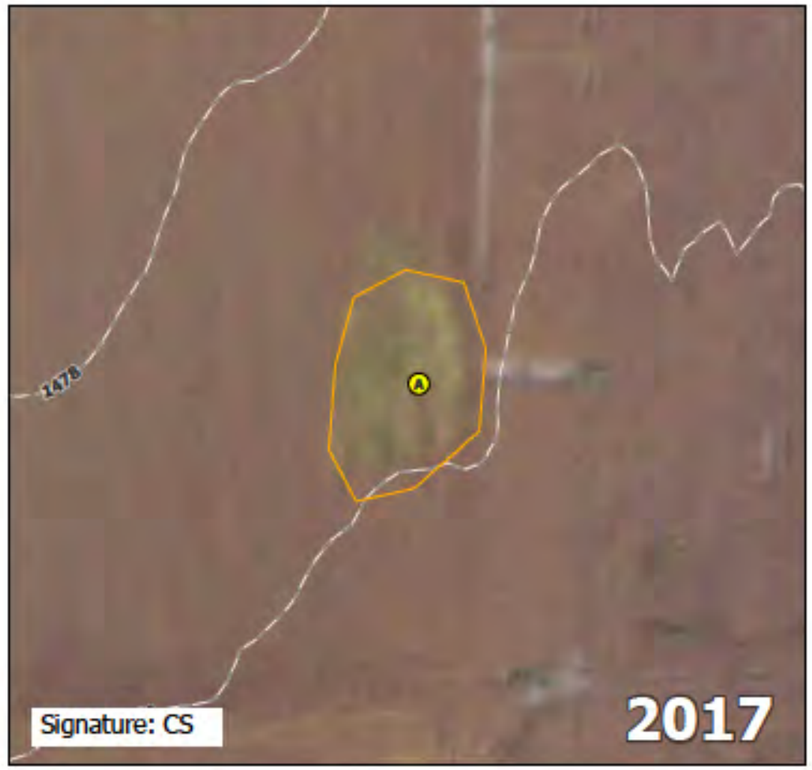
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Overview of upland sample point NWA002A.		
Direction: South	Photo ID: delin_photo-20230427-194924.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: NWA002







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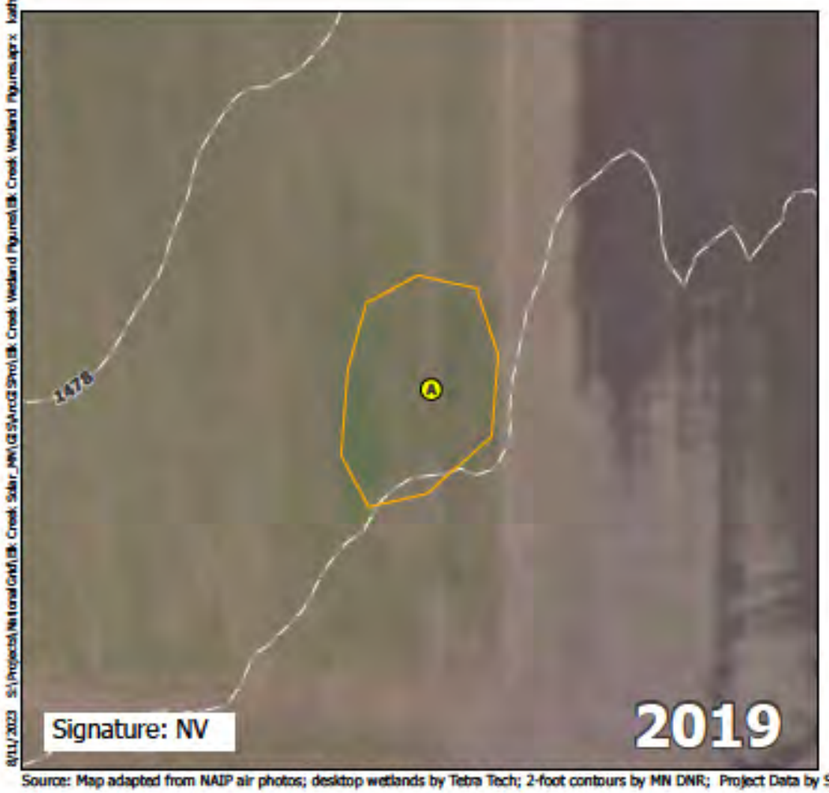
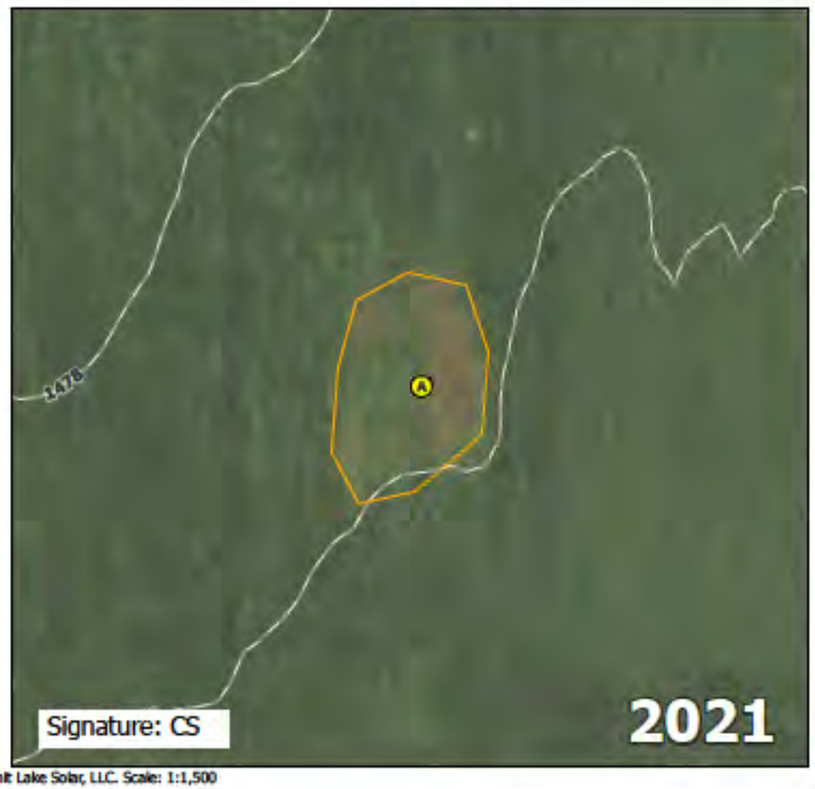
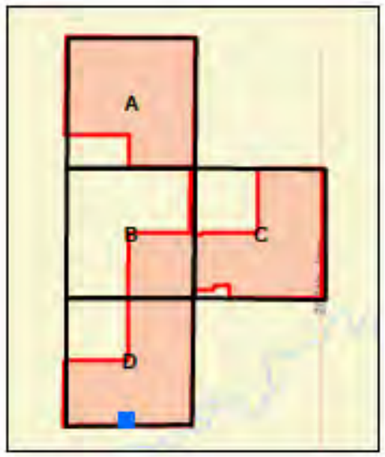






Feature ID: NWA002A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:1,500

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures\Elk Creek Wetland Figures.aprx kathybehrend

Non-Wetland ID

NWA003

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar City/County: Rock Sampling Date: 04/27/2023

Applicant/Owner: Elk Creek Solar, LLC State: MN Sampling Point: NWA003A

Investigator(s): Kathy Bellrichard Section, Township, Range: Sec.3 T102N, R33W

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

Slope (%): 1 Lat: 43.66312 Long: -96.10344 Datum: WGS84

Soil Map Unit Name: Whitewood silty clay loam, 0 to 2 percent slopes NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? ____

Wetland Hydrology Present? No

Is the sampled area within a wetland? No

If yes, optional wetland site ID: ____

Remarks:

Climate conditions wet. Recently harvested agricultural field.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA003A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? ___

Remarks:

Wetland evaluation, full delineation not completed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

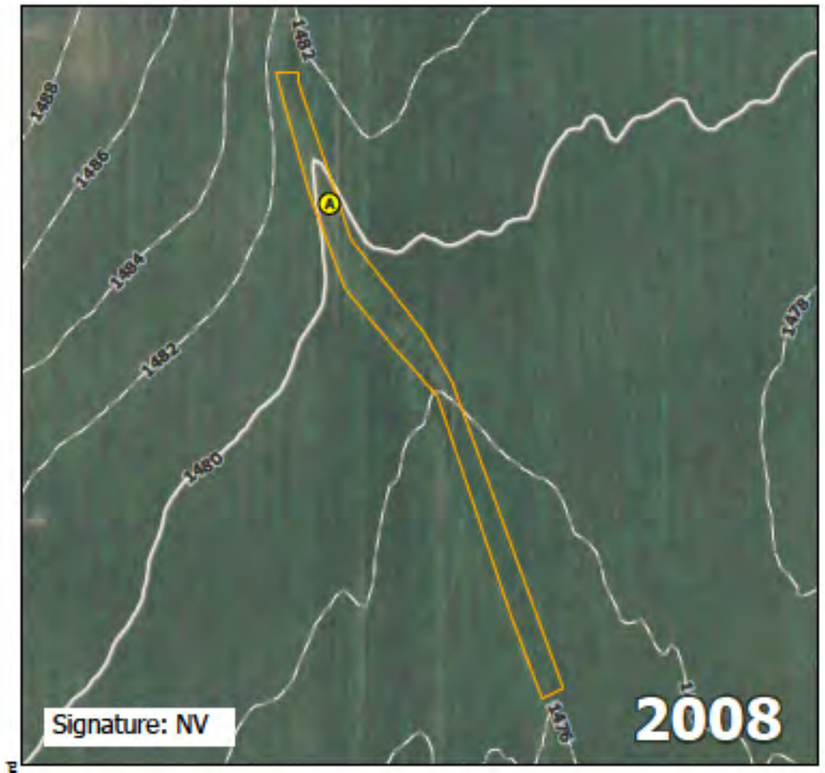
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	___	Depth (inches): ___

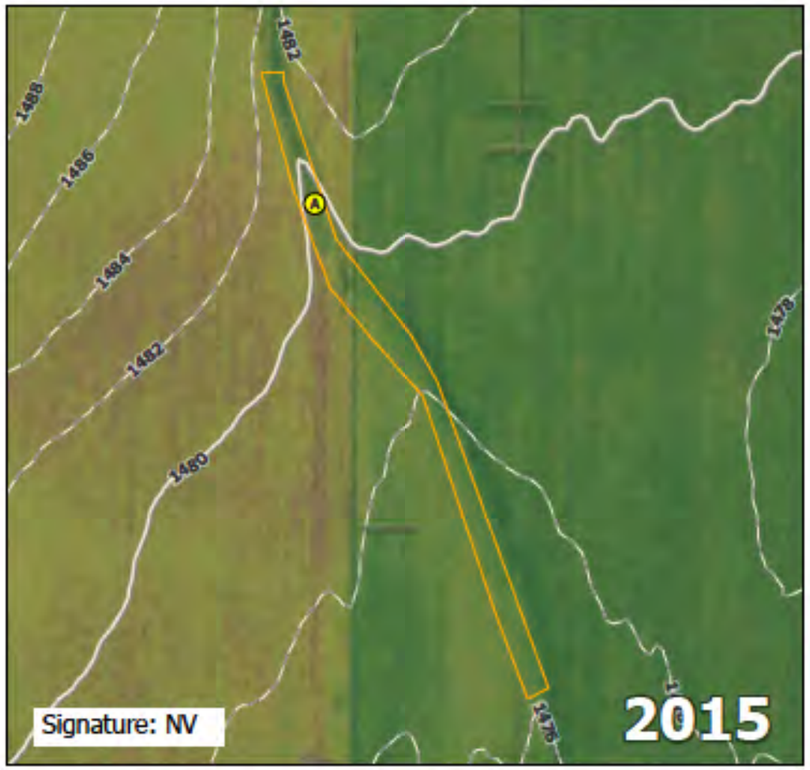
Wetland Hydrology Present? No

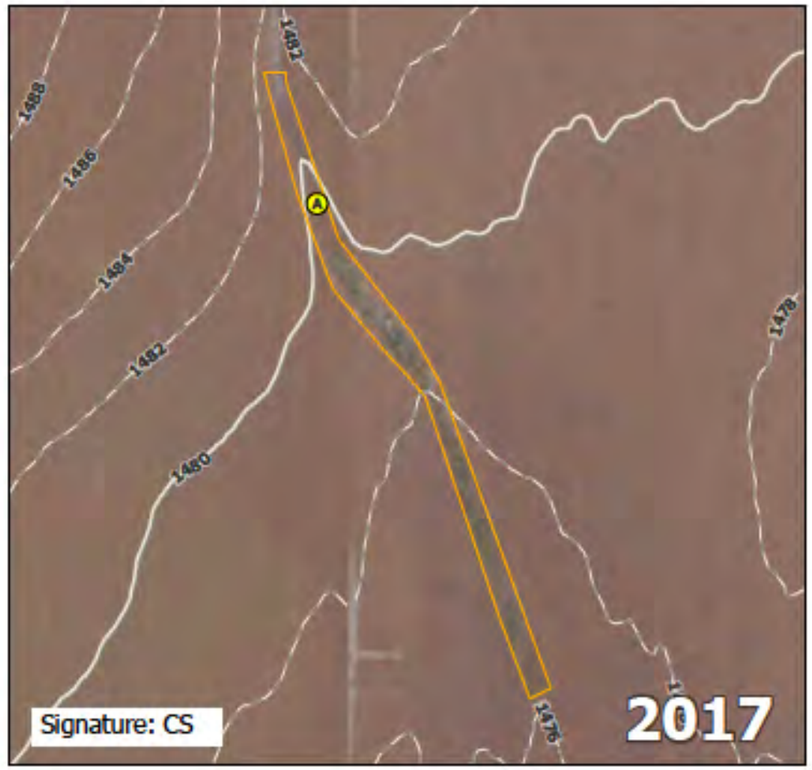
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Overview of upland sample point NWA003A.		
Direction: Southeast	Photo ID: delin_photo-20230427-200257.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: NWA003







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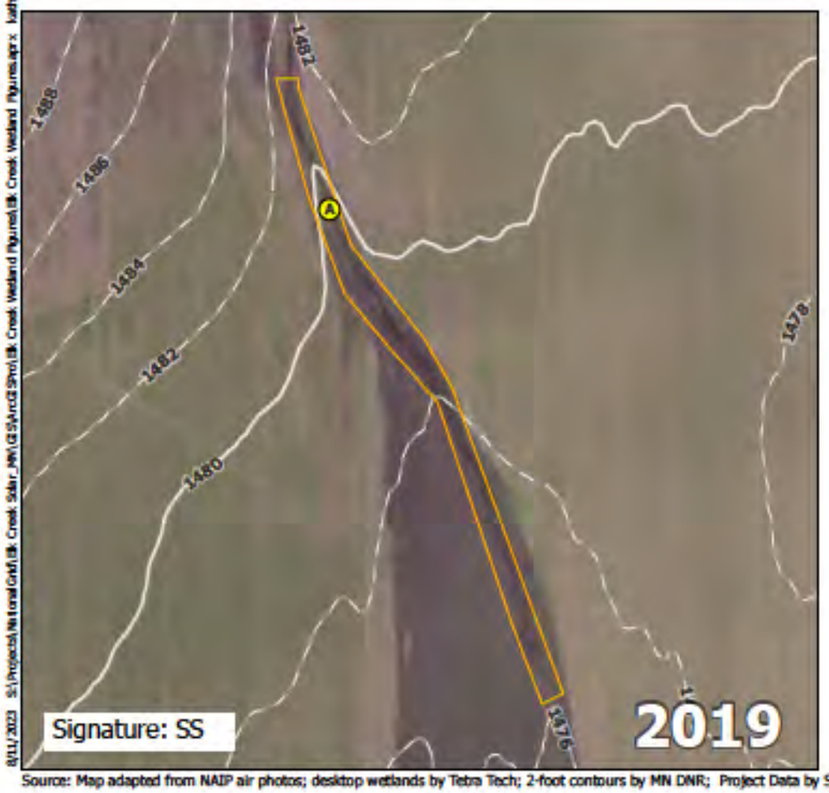
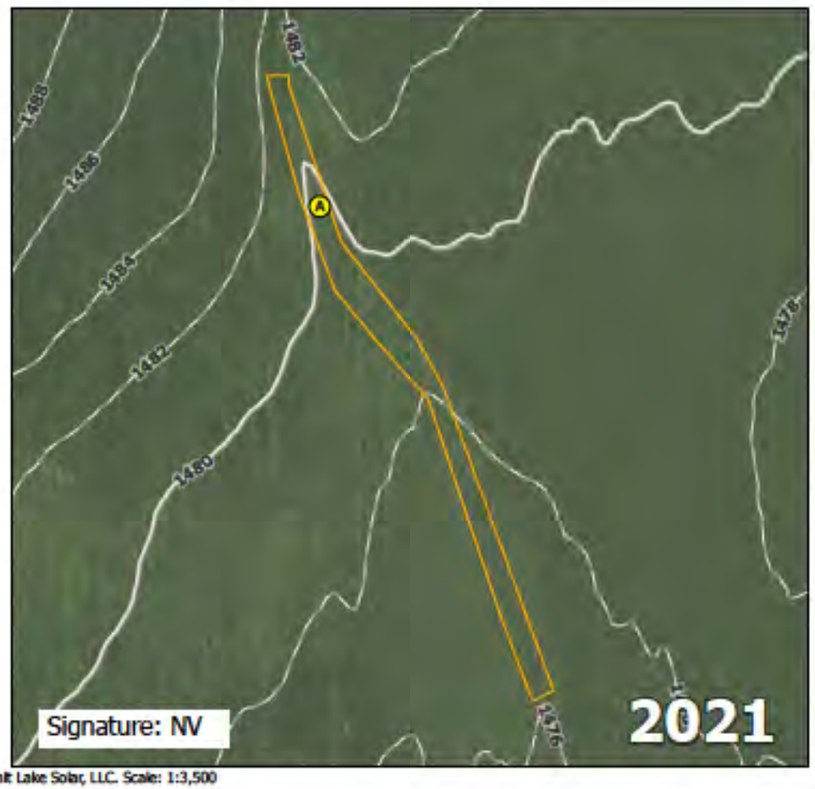
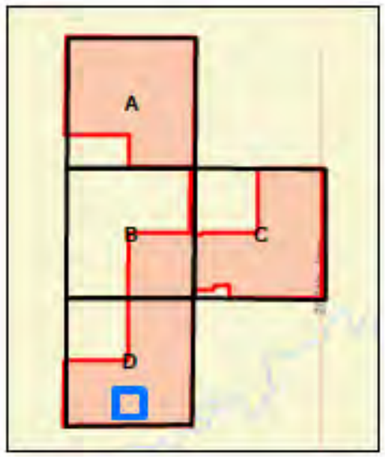






Feature ID: NWA003A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures\Elk Creek Wetland Figures.aprx kathybehrend

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:3,500

Non-Wetland ID

NWA006

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/27/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA006A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.3 T102N, R44W

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

Slope (%): 2 | Lat: 43.66959 | Long: -96.09967 | Datum: WGS84

Soil Map Unit Name: Marcus silty clay loam, 0 to 2 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes

Hydric Soil Present? No

Wetland Hydrology Present? No

Is the sampled area within a wetland? No

If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? Yes

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA006A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/1	100					Clay	
6-20	5Y 5/3	99	2.5Y 5/6	1	C	PL	Clay	Prominent

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

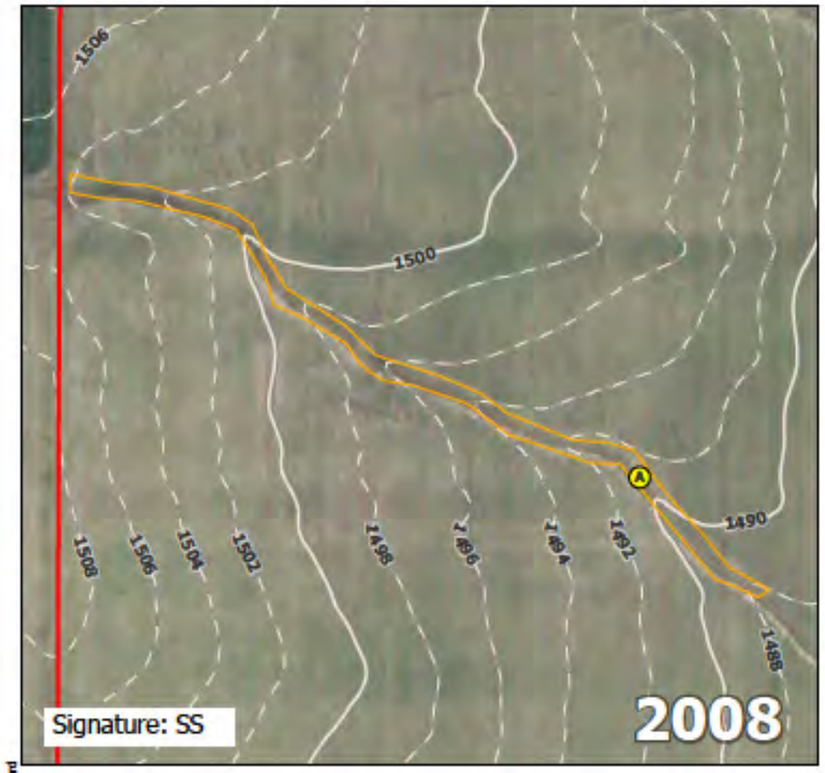
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

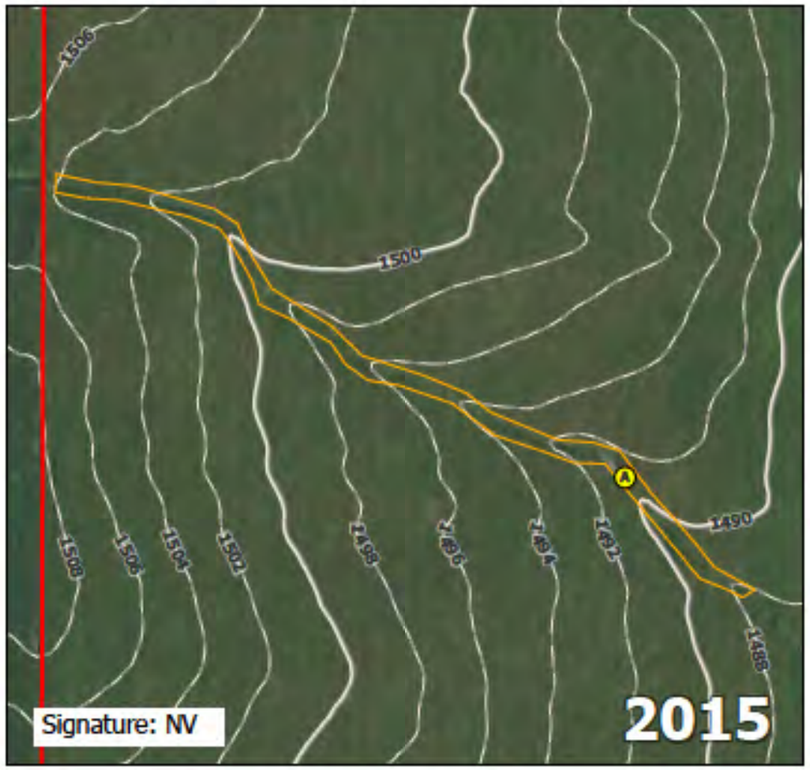
Wetland Hydrology Present? No

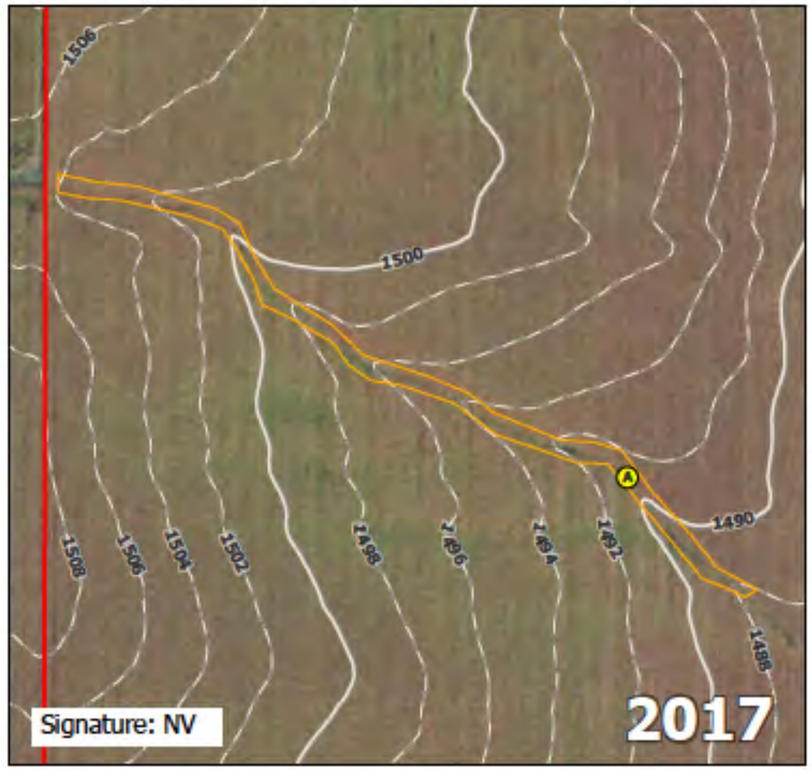
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Overview of upland sample point NWA006A.		
Direction: Northwest	Photo ID: delin_photo-20230427-234653.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: NWA006







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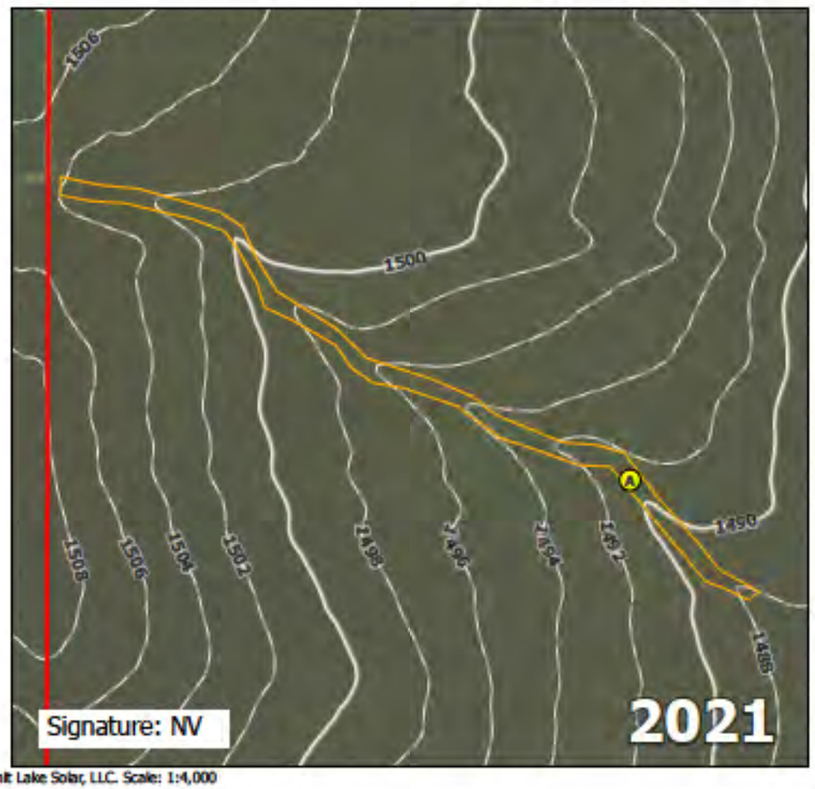
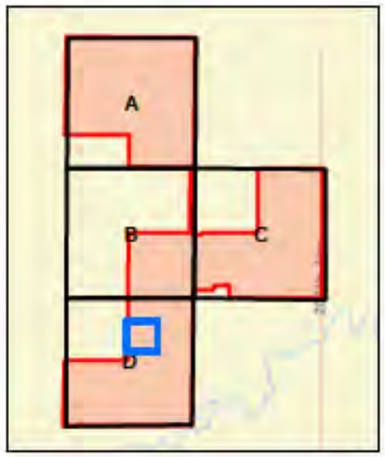




Feature ID: NWA006A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:4,000

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures.aprx kathybehrend

Non-Wetland ID

NWA007

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/27/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA007A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.3 T102N, R44W

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

Slope (%): 0 | Lat: 43.67134 | Long: -96.10074 | Datum: WGS84

Soil Map Unit Name: Primghar silty clay loam, 1 to 3 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? Yes

Hydric Soil Present? No — **Is the sampled area within a wetland?** **No**

Wetland Hydrology Present? No — If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? Yes

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA007A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-29	10YR 2/1	100					Clay	
29-36	2.5Y 4/2	99	2.5Y 5/6	1	C	PL	Clay	Prominent

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

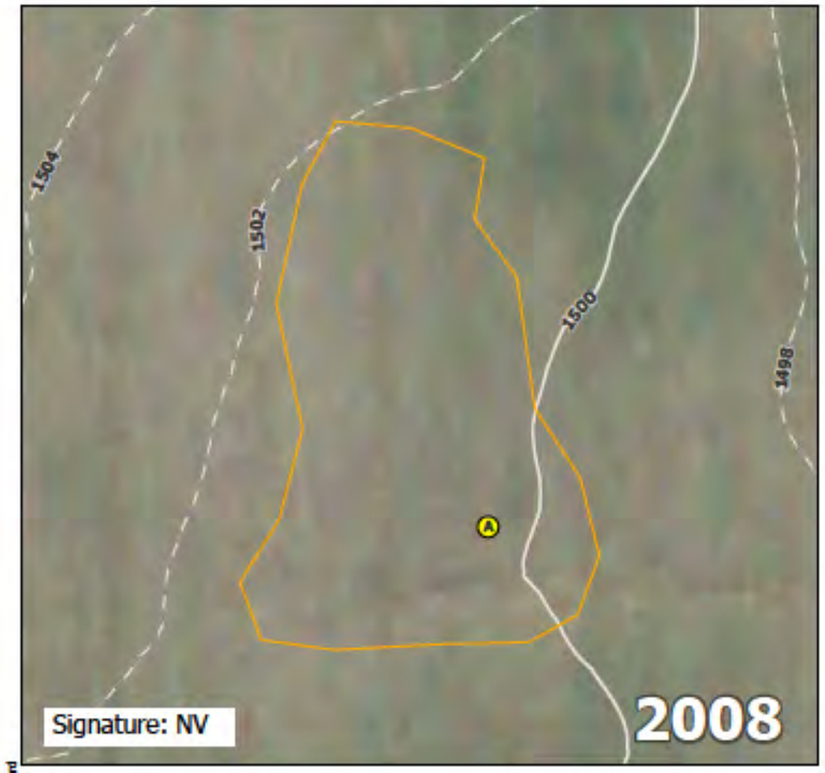
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

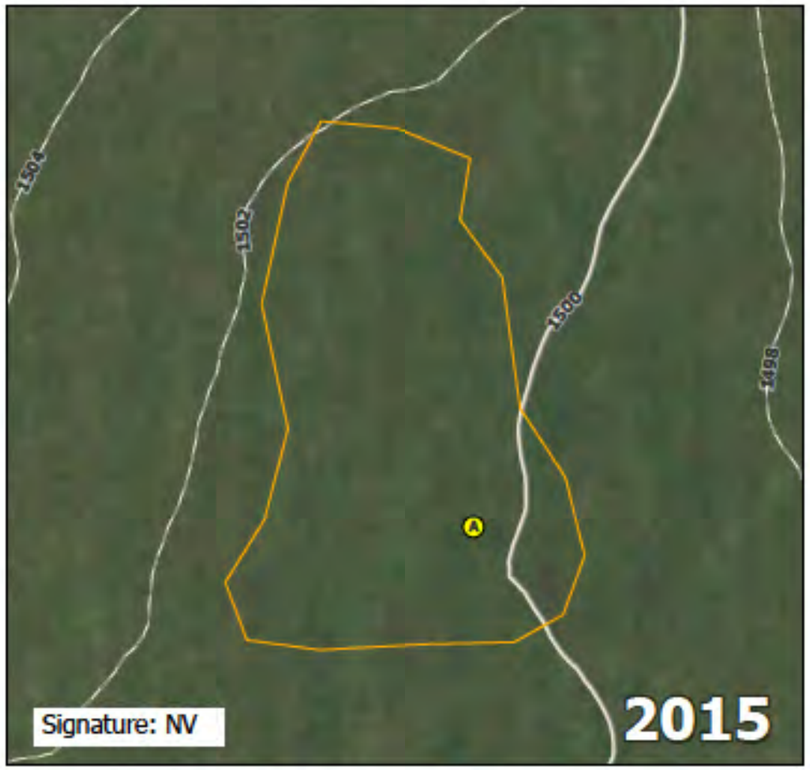
Wetland Hydrology Present? No

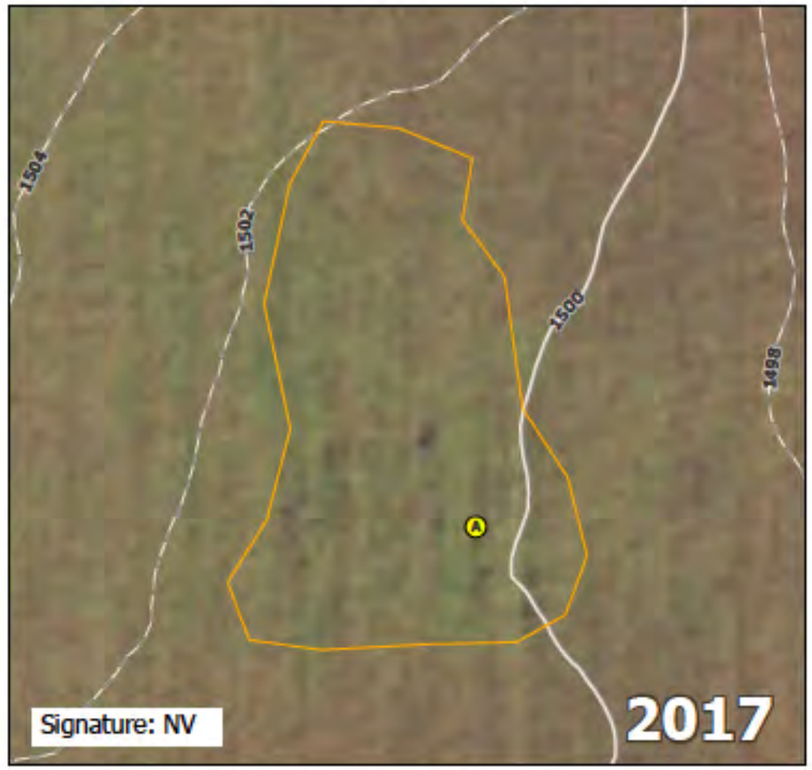
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Overview of upland sample point NWA007A.		
Direction: North	Photo ID: delin_photo-20230428-000748.jpg	Date: 04/27/2023
Project Name: Elk Creek Solar		Feature ID: NWA007







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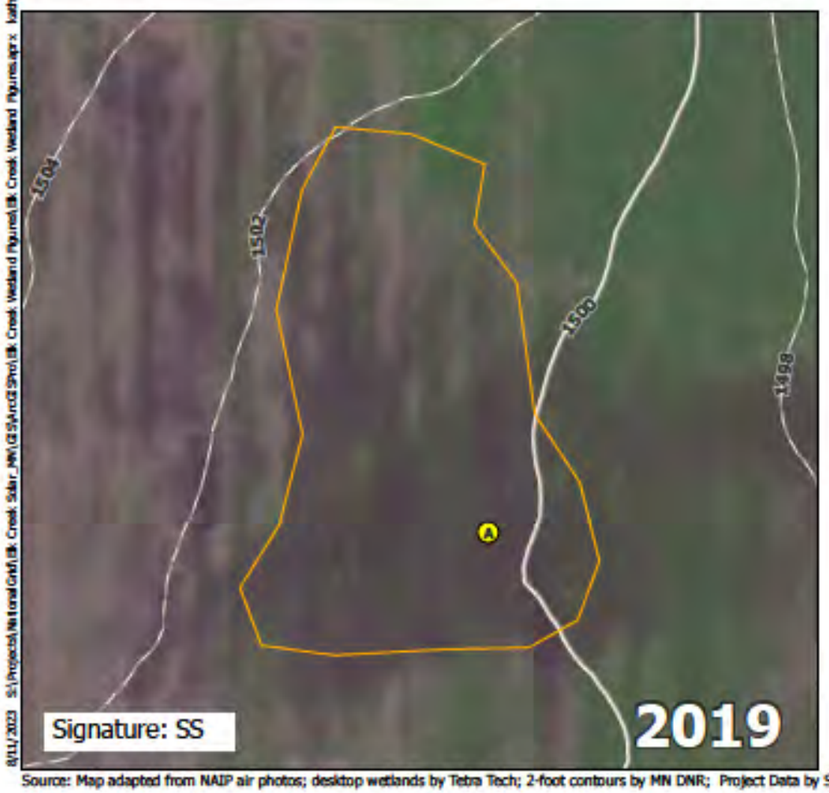
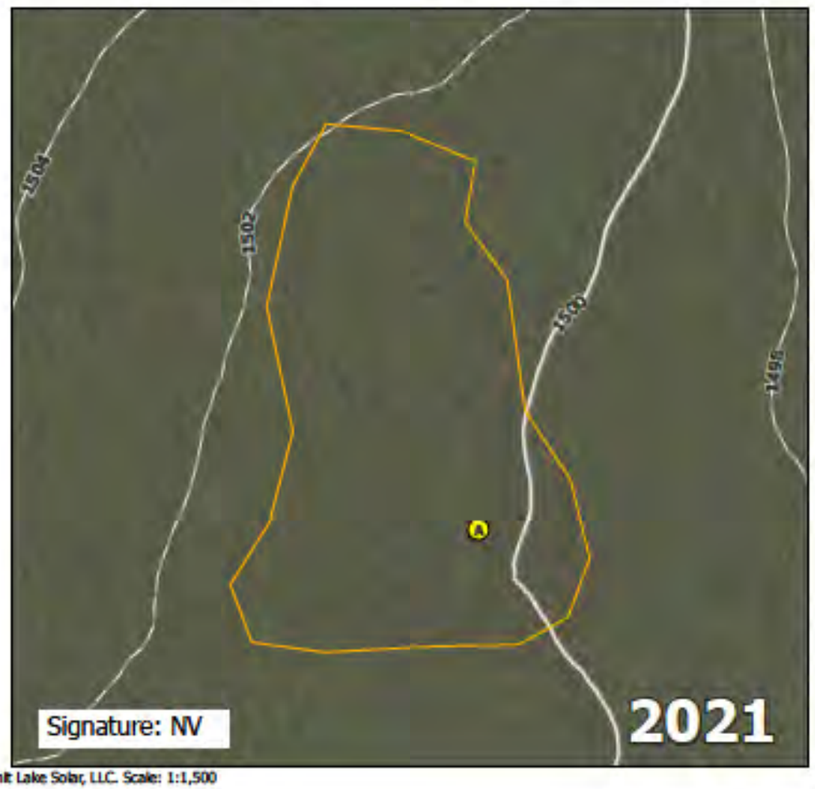
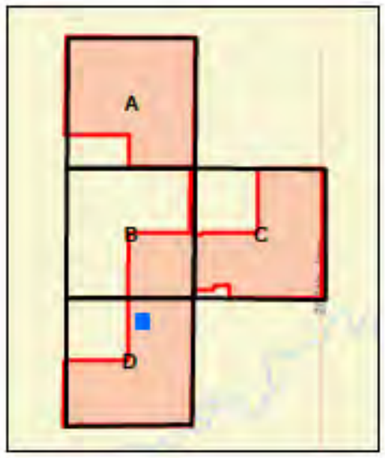






Feature ID: NWA007A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:1,500

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures.aprx kathybehrend

Non-Wetland ID

NWA010

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/28/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA010A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.34 T103N, R44W

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

Slope (%): 2 | Lat: 43.67511 | Long: -96.0971 | Datum: WGS84

Soil Map Unit Name: Havelock clay loam, 0 to 2 percent slopes, frequently flooded | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? ____ | Is the sampled area within a wetland? No

Wetland Hydrology Present? No | If yes, optional wetland site ID: ____

Remarks:

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	____	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	____	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Poa compressa*	50	Y	FACU
2. *Digitaria sanguinalis*	50	Y	FACU
3. *Taraxacum officinale*	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	102	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1.			
2.			
	____	=Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	102	x 4 =	408
UPL species	0	x 5 =	0
Column totals	102 (A)		408 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? No

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

Bare ground: 0% Open water: 0%

SOIL

Sampling Point: NWA010A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? ___

Remarks:

Obvious not a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

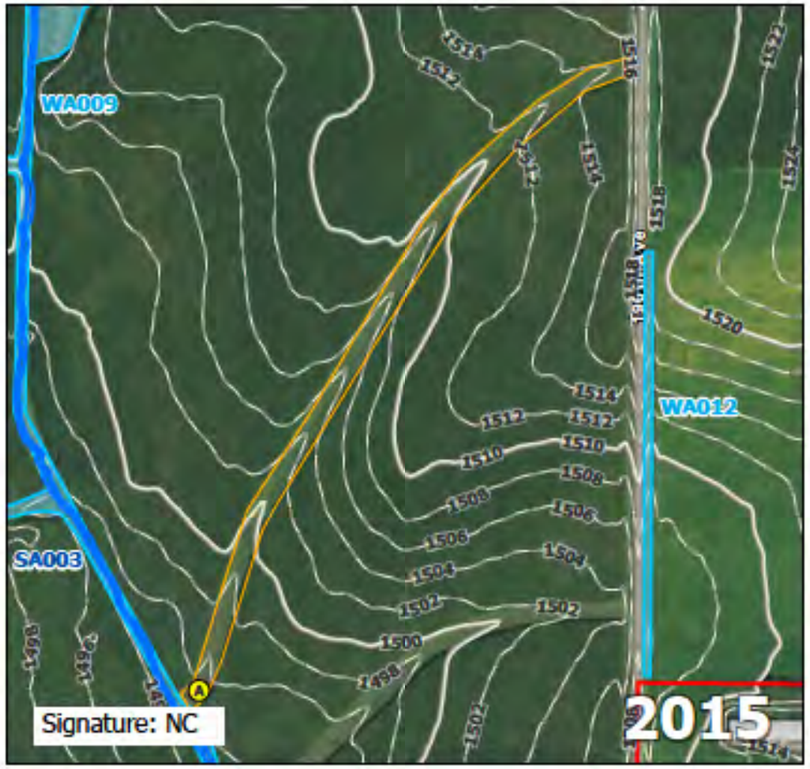
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	___	Depth (inches): ___

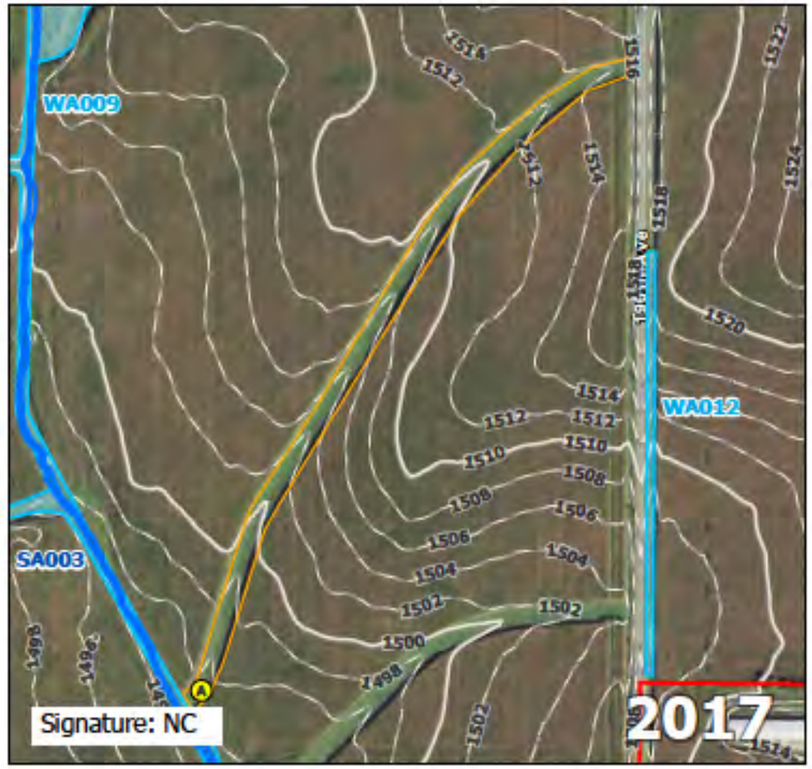
Wetland Hydrology Present? No

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

Remarks:

Overview of upland sample point NWA010A.		
Direction: Southwest	Photo ID: delin_photo-20230428-124844.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: NWA010





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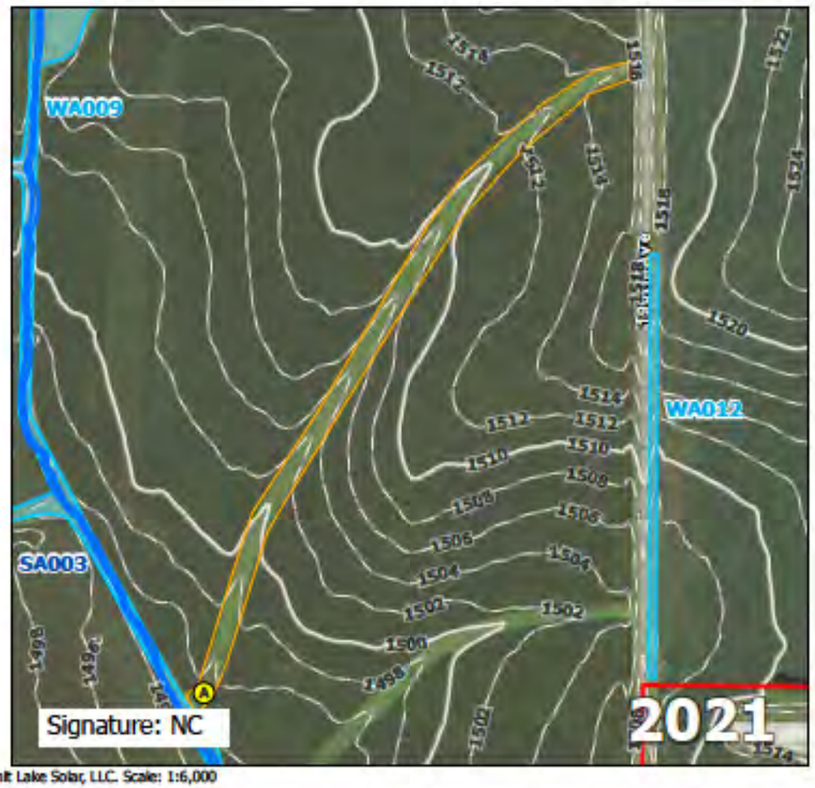

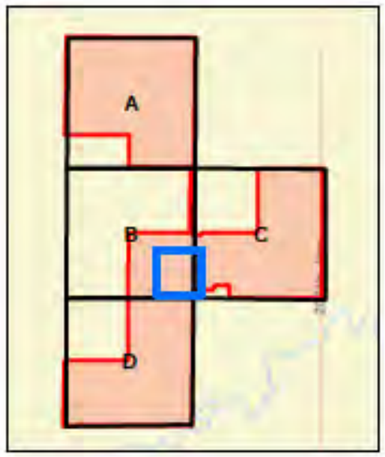

Feature ID: NWA010A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:6,000

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Non-Wetland ID

NWA014

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/28/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA014A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.27 T103N, R44W

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

Slope (%): 0 | Lat: 43.70261 | Long: -96.09853 | Datum: WGS84

Soil Map Unit Name: Rushmore silty clay loam, 0 to 2 percent slopes | NWI Classification: R5UBH

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? No | **Is the sampled area within a wetland?** **No**

Wetland Hydrology Present? Yes | If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA014A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Clay	
14-26	10YR 2/1	98	10YR 4/6	2	C	M	Clay	Prominent
26-30	2.5Y 4/3	95	2.5Y 5/6	5	C	M	Clay	Distinct

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

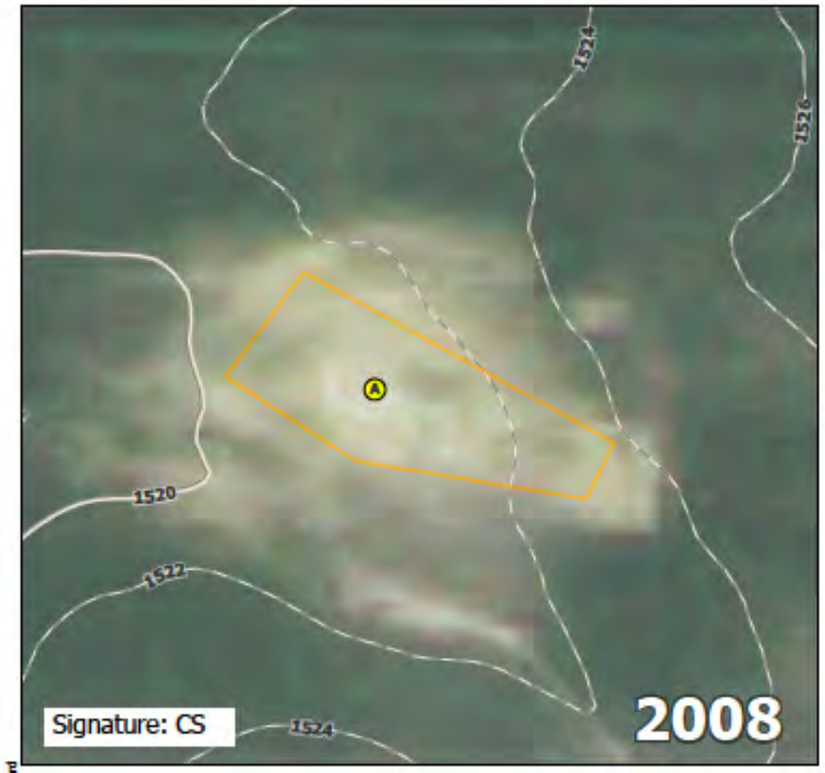
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

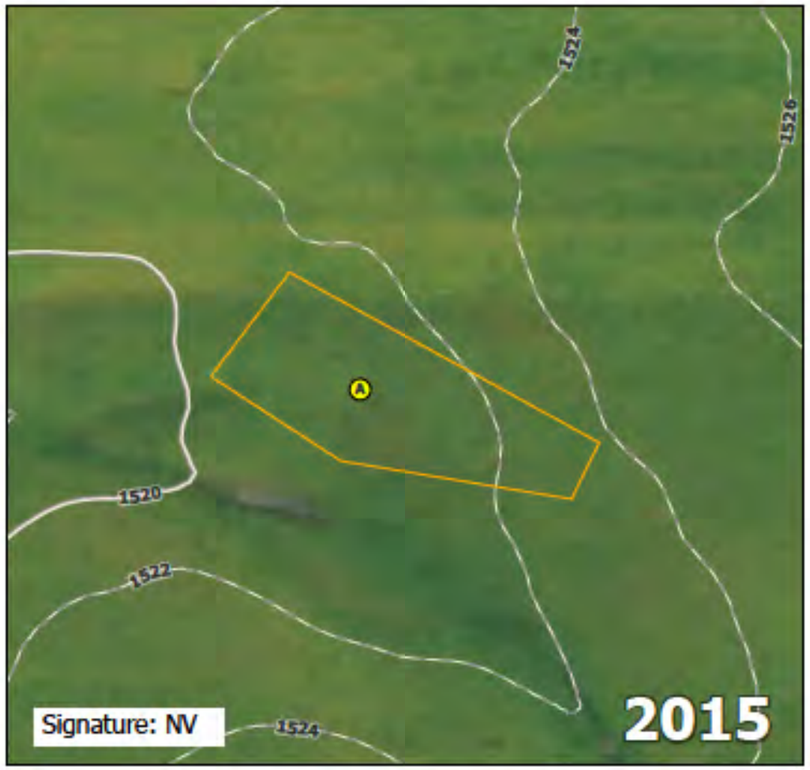
Wetland Hydrology Present? Yes

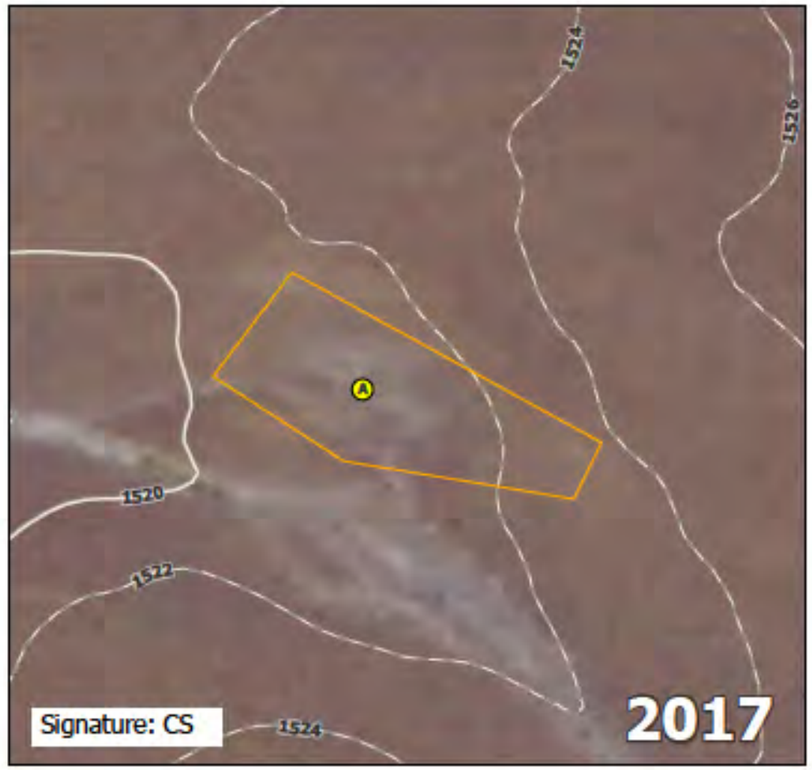
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Overview of upland sample point NWA014A.		
Direction: North	Photo ID: delin_photo-20230428-154122.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: NWA014







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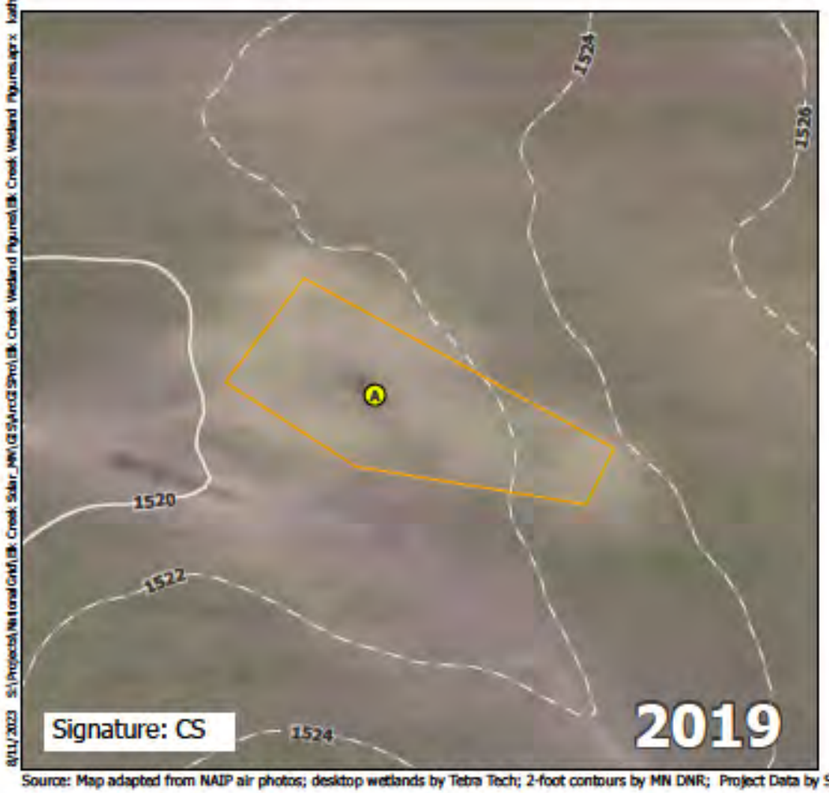
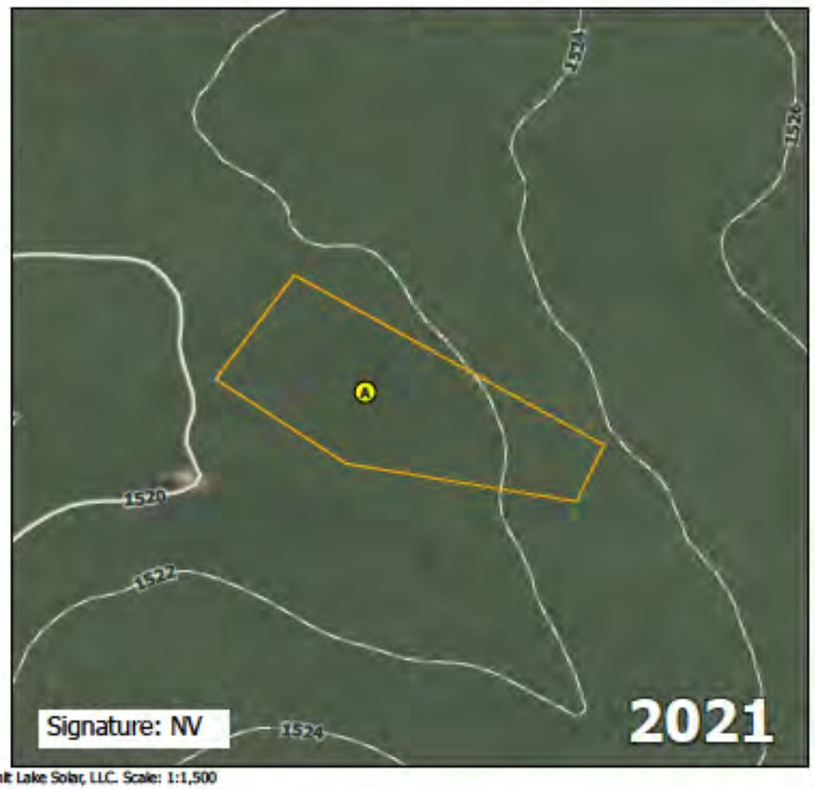
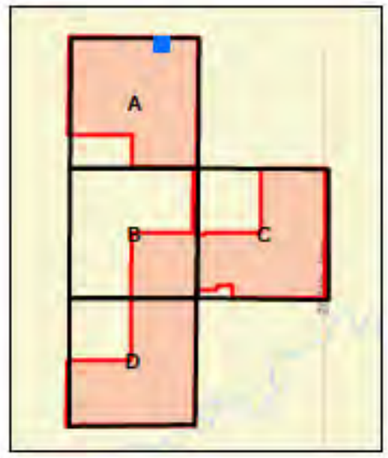






Feature ID: NWA014A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures\Elk Creek Wetland Figures.aprx kathybehrend

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:1,500

Non-Wetland ID

NWA015

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar City/County: Rock Sampling Date: 04/28/2023

Applicant/Owner: Elk Creek Solar, LLC State: MN Sampling Point: NWA015A

Investigator(s): Kathy Bellrichard Section, Township, Range: Sec.27 T103N, R44W

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

Slope (%): 1 Lat: 43.70075 Long: -96.09683 Datum: WGS84

Soil Map Unit Name: Rushmore silty clay loam, 0 to 2 percent slopes NWI Classification: R4SBC

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? No Is the sampled area within a wetland? No

Wetland Hydrology Present? No If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA015A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-24	10YR 2/1	100					Clay	
24-30	2.5Y 4/1	100					Clay	

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (If observed):

Type: _____

Depth (Inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

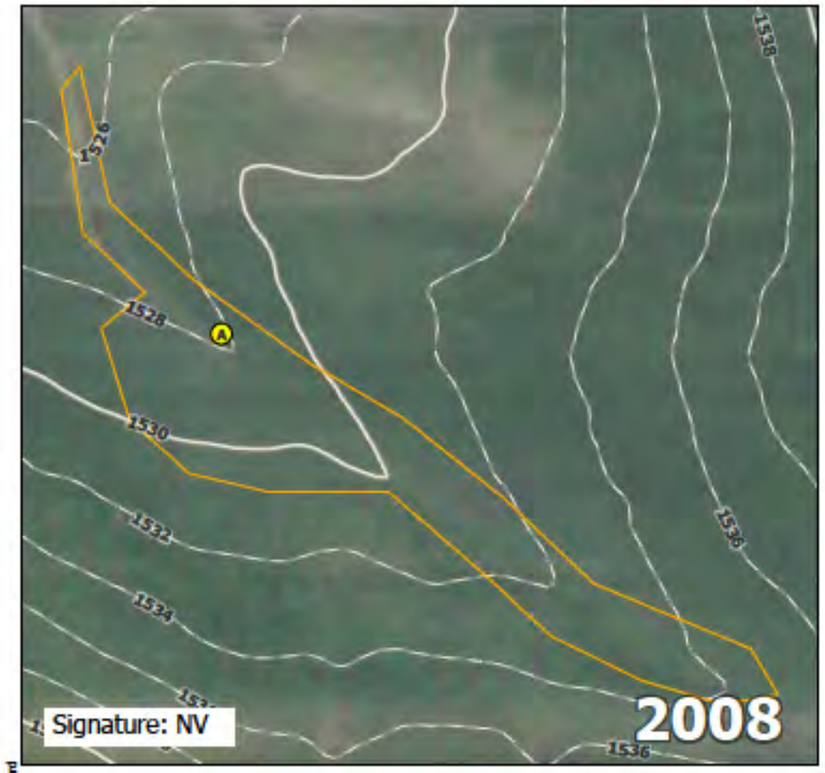
Surface Water Present?	Yes	___	No	X	Depth (Inches): ___
Water Table Present?	Yes	___	No	X	Depth (Inches): ___
Saturation Present? (Includes capillary fringe)	Yes	___	No	X	Depth (Inches): ___

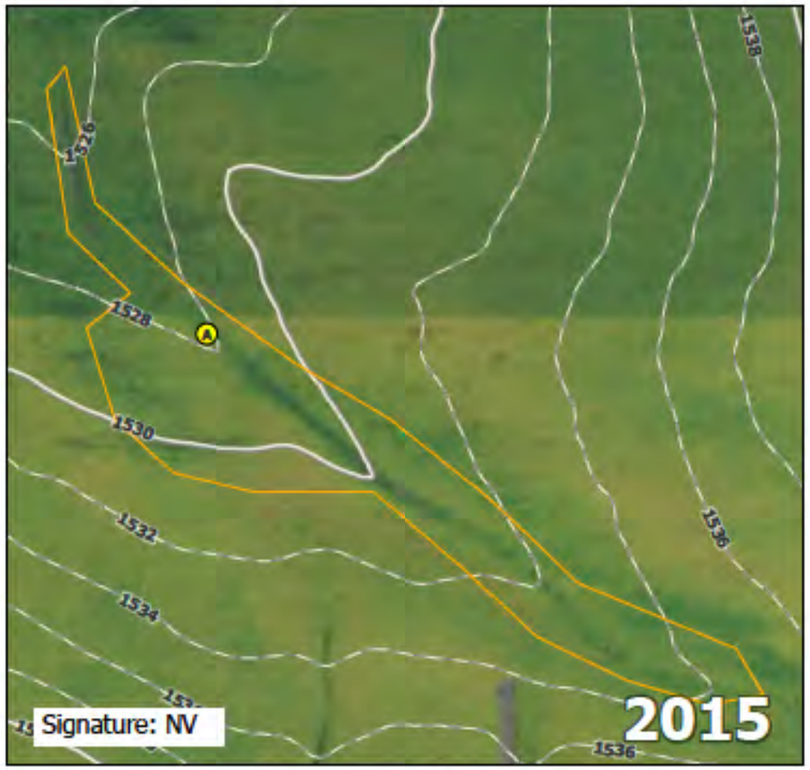
Wetland Hydrology Present? No

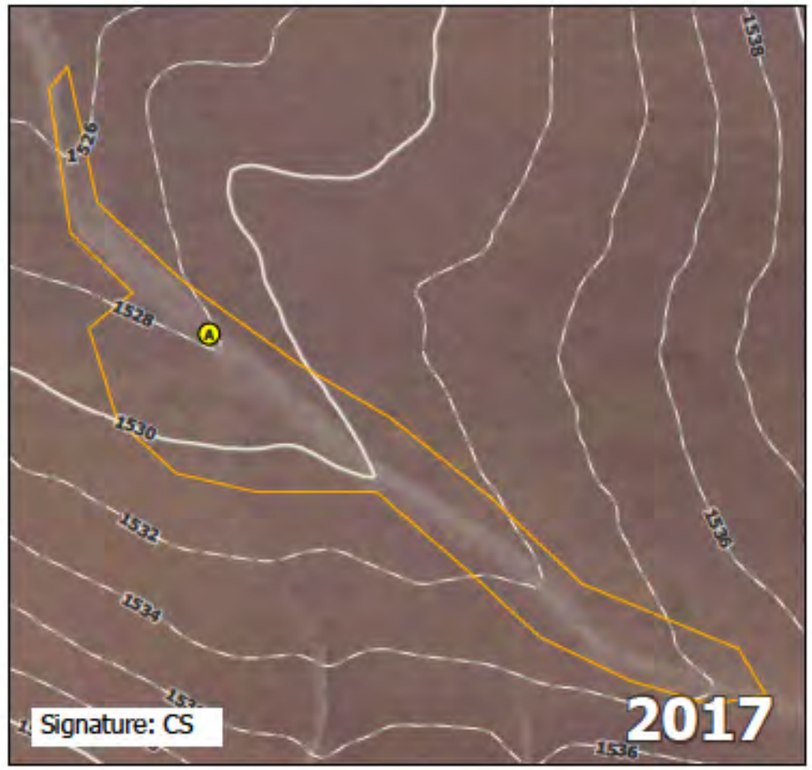
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Overview of upland sample point NWA015A.		
Direction: North	Photo ID: delin_photo-20230428-155414.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: NWA015







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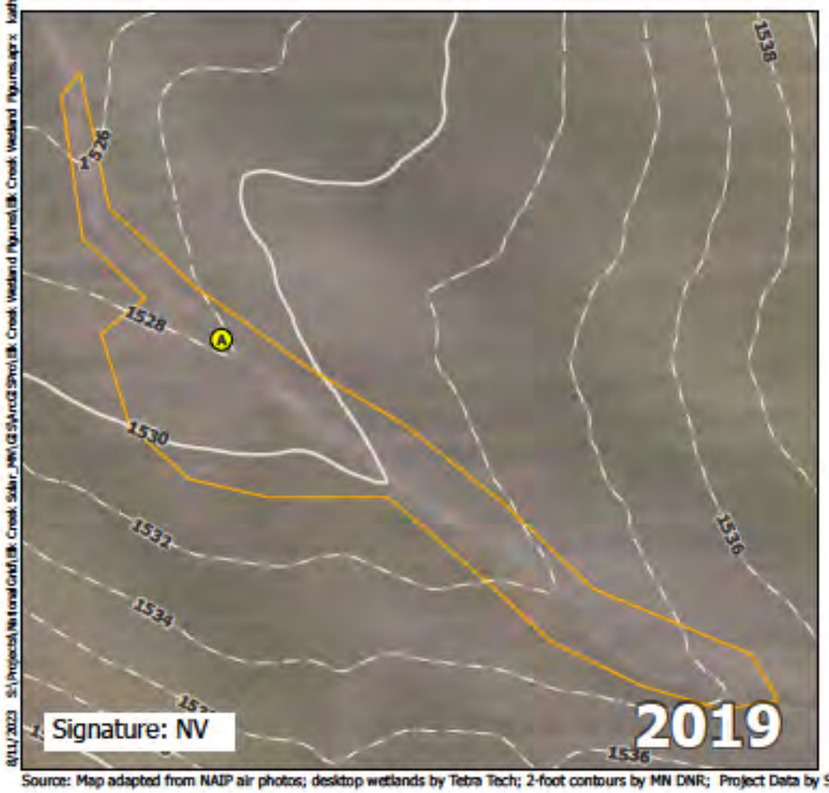
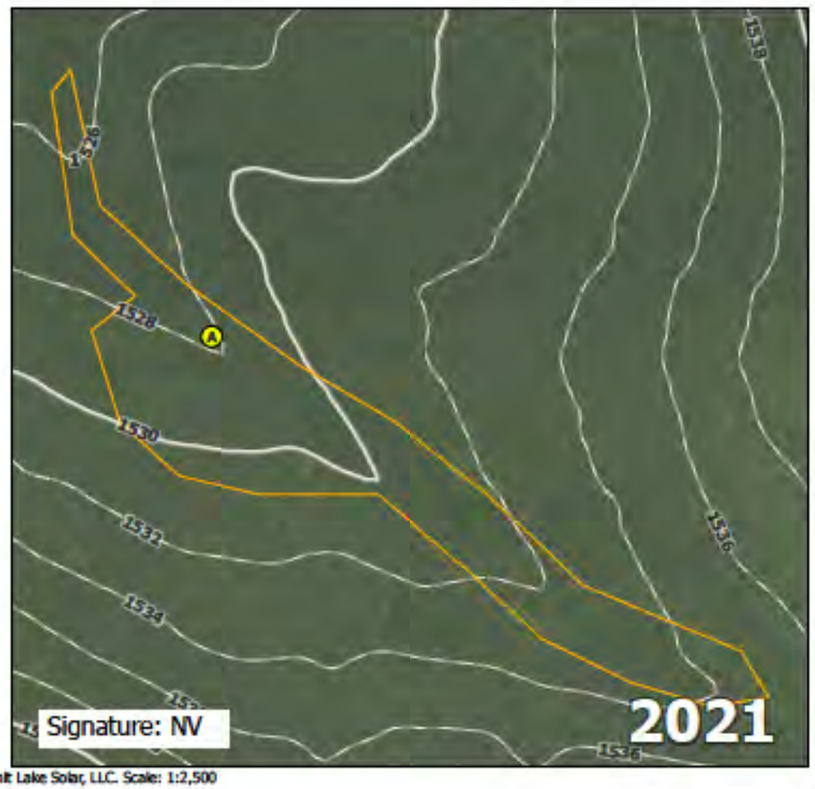
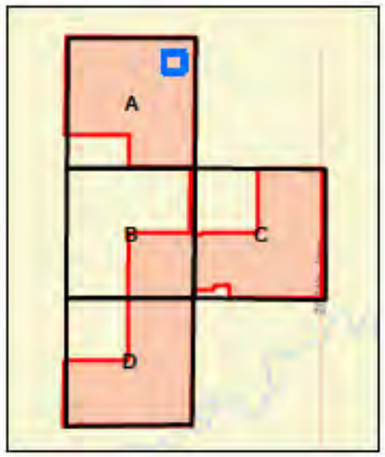






Feature ID: NWA015A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures.aprx kathybehrend

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:2,500

Non-Wetland ID

NWA016

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/28/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA016A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.27 T103N, R44W

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

Slope (%): 2 | Lat: 43.7014 | Long: -96.09956 | Datum: WGS84

Soil Map Unit Name: Wilmonton silty clay loam, 1 to 3 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? No | Is the sampled area within a wetland? No

Wetland Hydrology Present? No | If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA016A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 2/1	100					Clay	
18-26	2.5Y 3/1	100					Clay	
26-30	2.5Y 4/1	100					Clay	

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

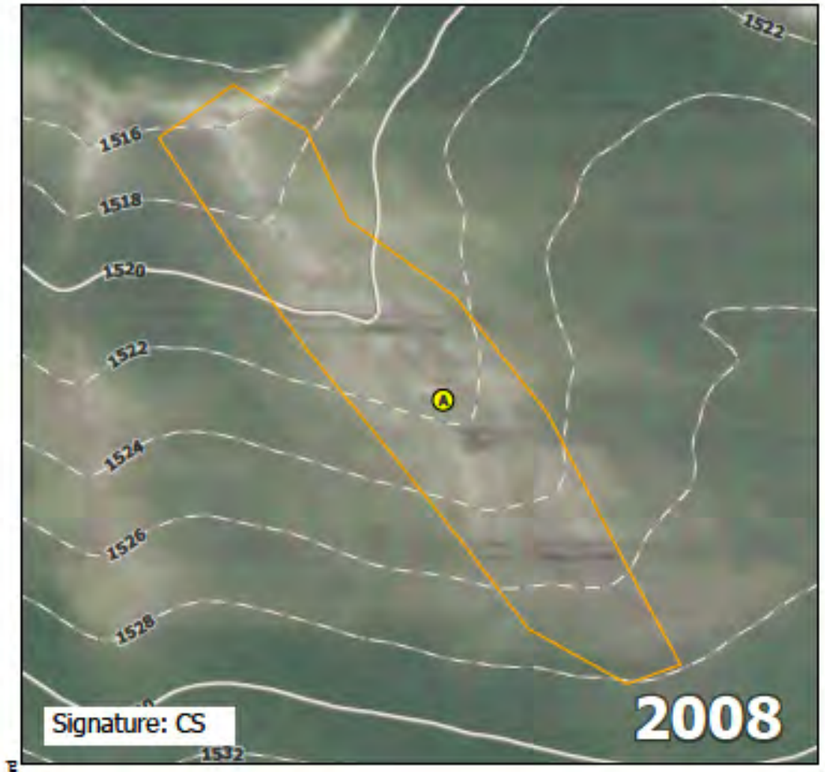
Wetland Hydrology Present? No

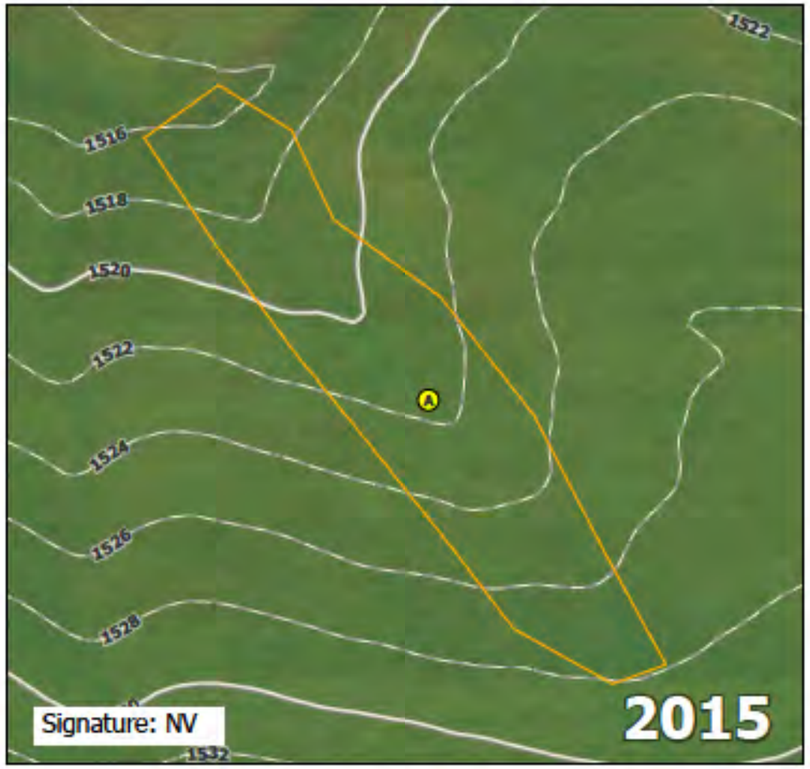
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

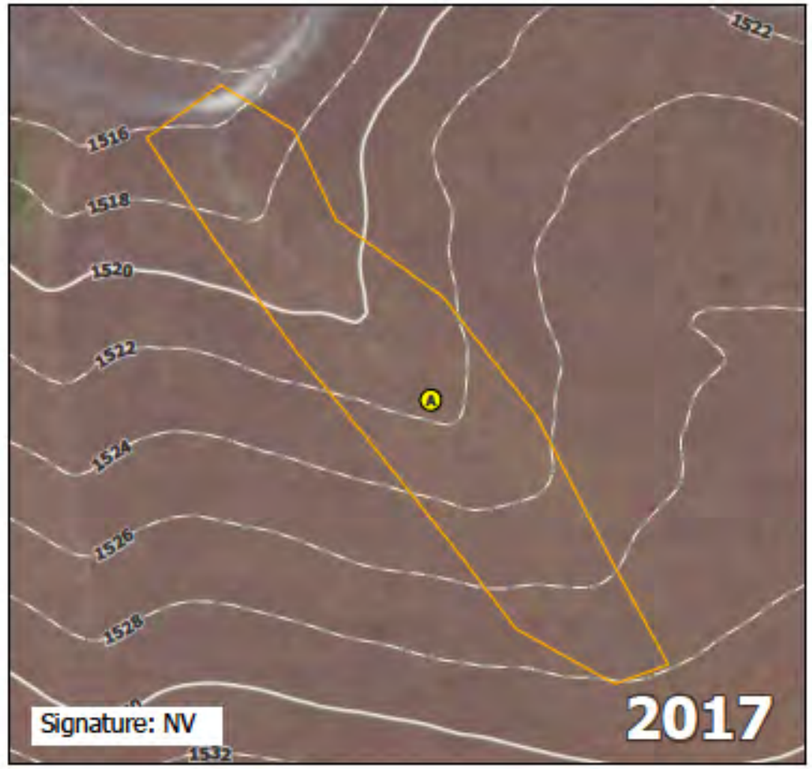
Remarks:

Overview of upland sample point NWA016A.

Direction: Northwest	Photo ID: delin_photo-20230428-160604.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: NWA016







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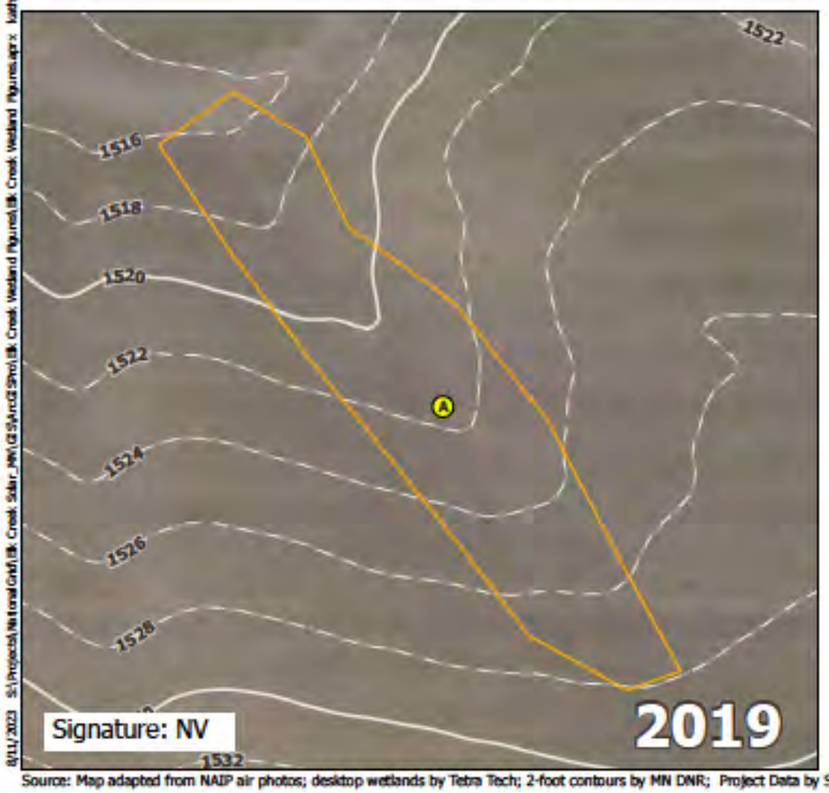
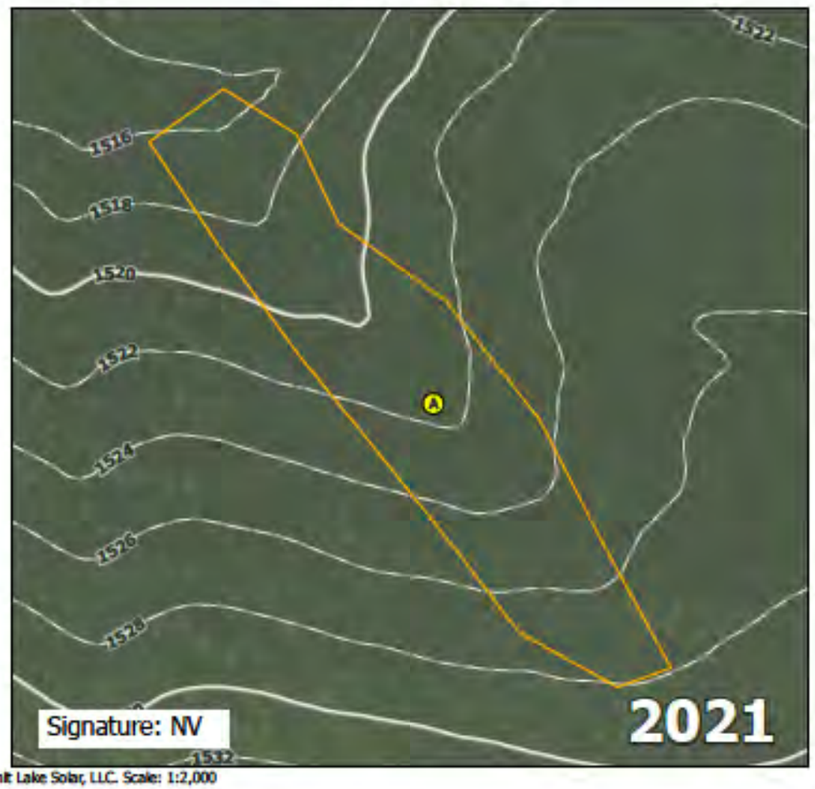
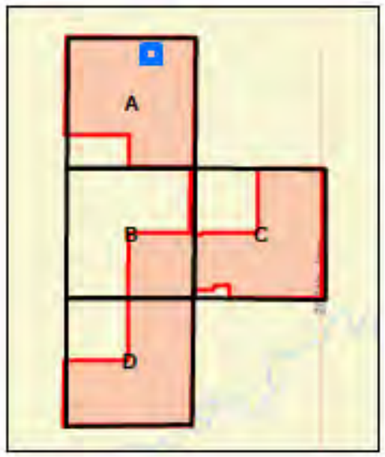
Feet







Feature ID: NWA016A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:2,000

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures.aprx kathybehrend

Non-Wetland ID

NWA017

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Elk Creek Solar | City/County: Rock | Sampling Date: 04/28/2023

Applicant/Owner: Elk Creek Solar, LLC | State: MN | Sampling Point: NWA017A

Investigator(s): Kathy Bellrichard | Section, Township, Range: Sec.27 T103N, R44W

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

Slope (%): 1 | Lat: 43.70111 | Long: -96.1031 | Datum: WGS84

Soil Map Unit Name: Wilmonton silty clay loam, 1 to 3 percent slopes | NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)

Are vegetation X, soil ____, or hydrology ____ Significantly disturbed? Are "normal circumstances present? No

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? No

Hydric Soil Present? No | **Is the sampled area within a wetland?** **No**

Wetland Hydrology Present? Yes | If yes, optional wetland site ID: ____

Remarks:

Recently harvested agricultural field.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: ____)			
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: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (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:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic Vegetation Present? No

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

Harvested agricultural field. Bare ground: 100% Open water: 0%

SOIL

Sampling Point: NWA017A

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	100					Clay	
12-29	2.5Y 3/1	100					Clay	
29-34	2.5Y 4/2	99	2.5Y 4/4	1	C	M	Sandy Loam	Distinct

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

- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ Dark Surface (S7) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

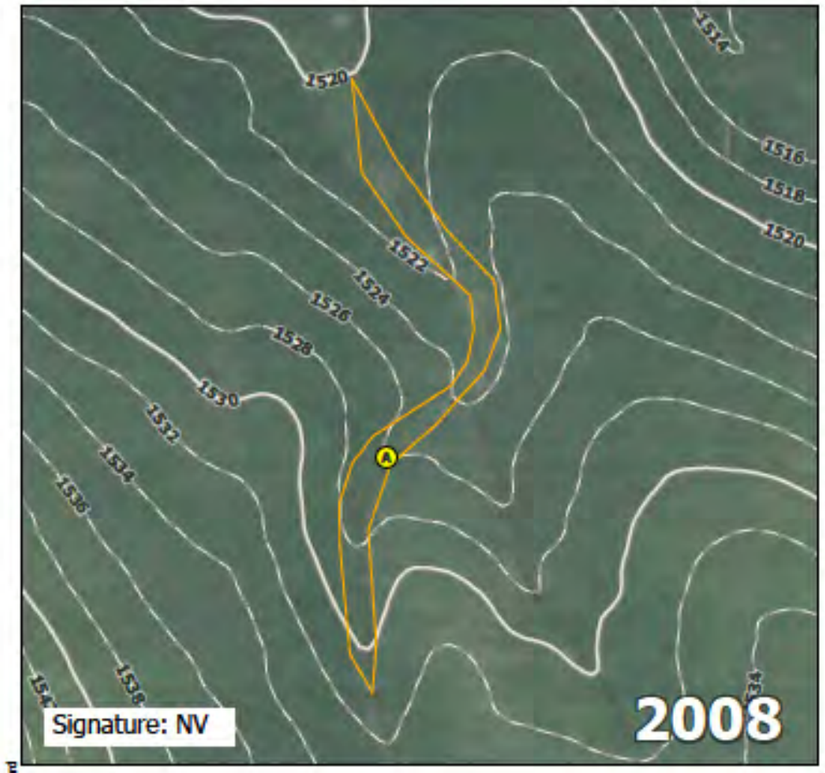
Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

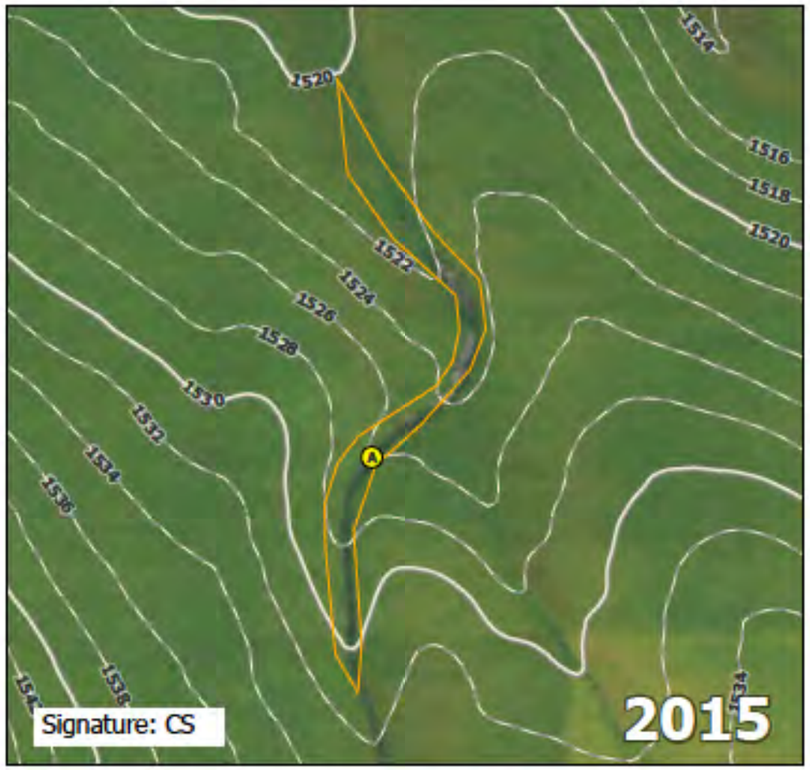
Wetland Hydrology Present? Yes

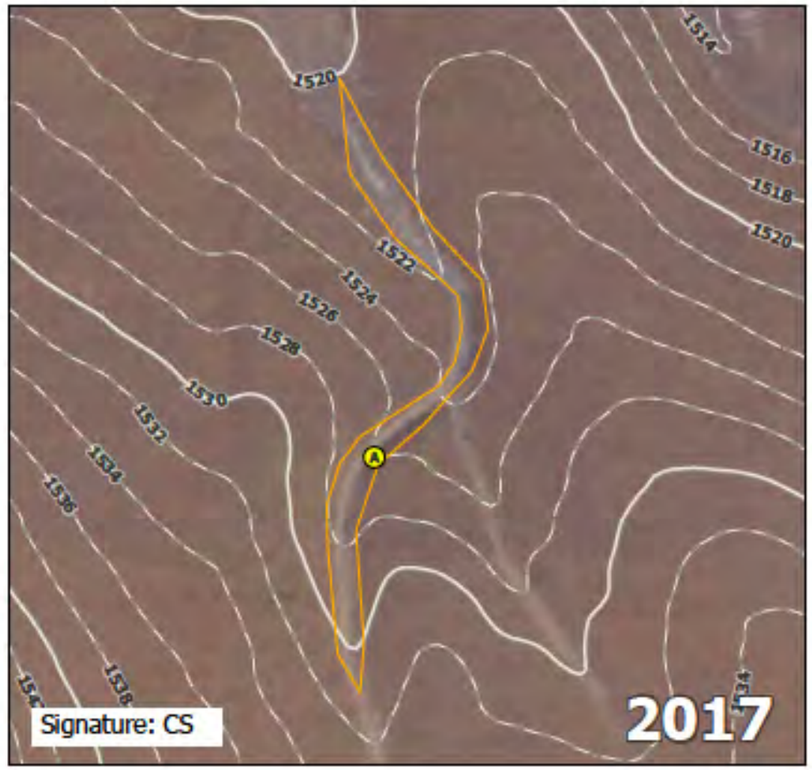
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

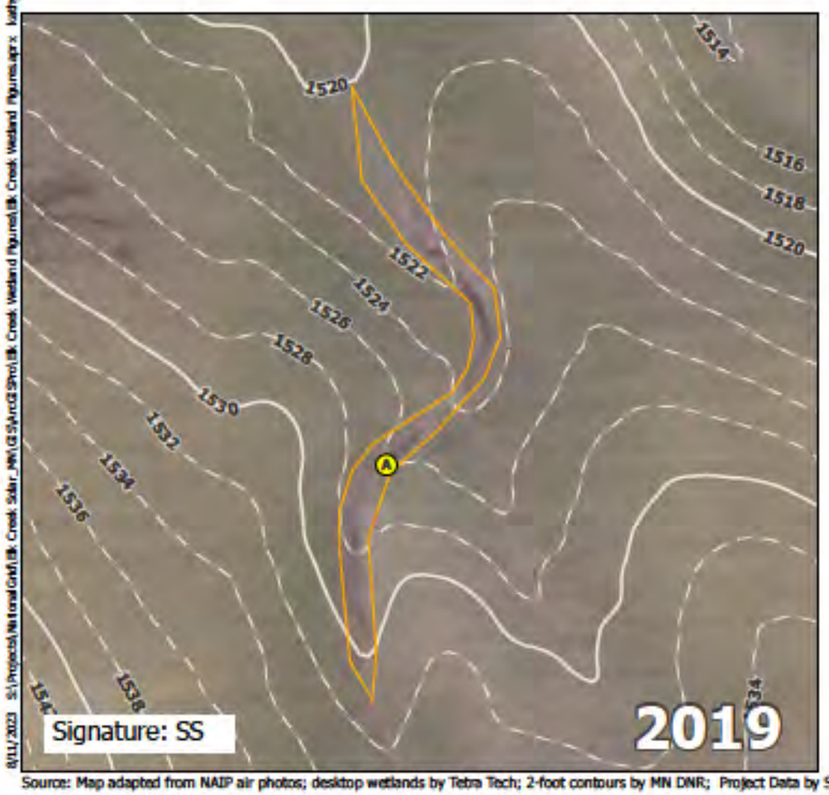
Overview of upland sample point NWA017A.		
Direction: South	Photo ID: delin_photo-20230428-162314.jpg	Date: 04/28/2023
Project Name: Elk Creek Solar		Feature ID: NWA017

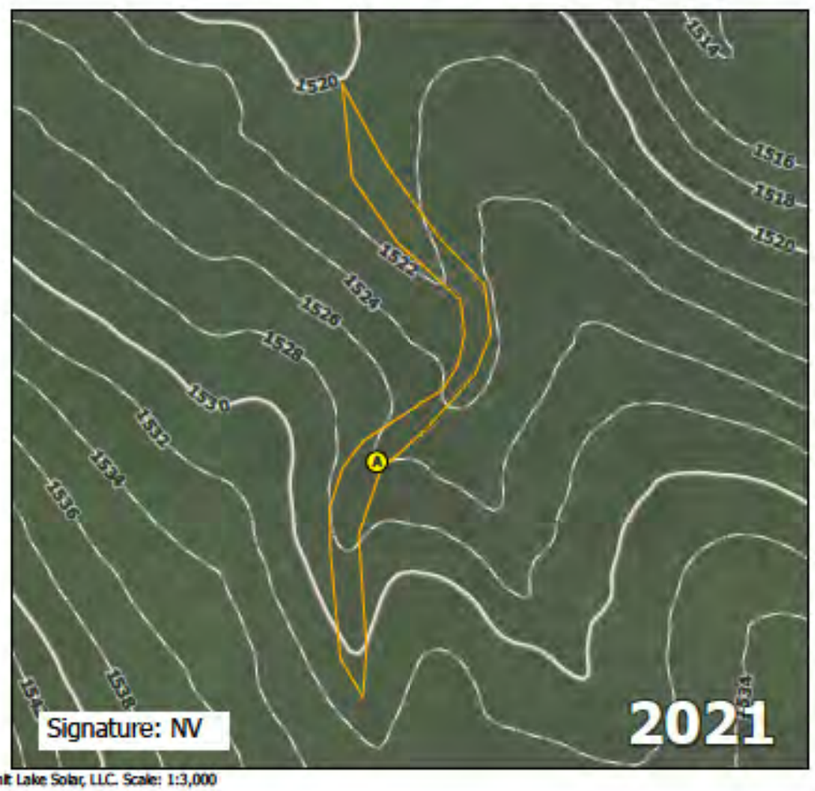


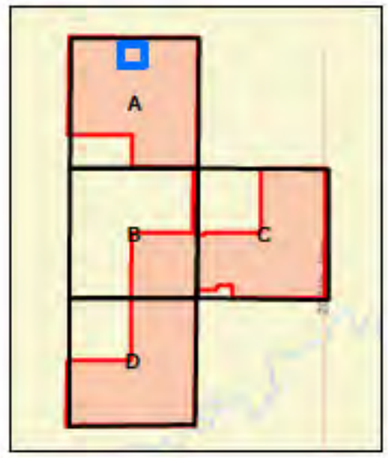




0 80 160 240 320 400 Feet







Feature ID: NWA017A

- Project Area
- Desktop Potential Wetlands and Waters

Wetland Survey

- Non-Wetland Sample Plot
- Delineated Wetland
- Delineated Stream

2-foot Elevation Contour

- Index
- Intermediate

TETRA TECH

Aerial Photograph Review

Elk Creek Solar
Rock County, Minnesota

Source: Map adapted from NAIP air photos; desktop wetlands by Tetra Tech; 2-foot contours by MN DNR; Project Data by Summit Lake Solar, LLC. Scale: 1:3,000

8/11/2023 S:\Projects\NationalGrid\Elk Creek Solar_MN\GIS\ArcGIS\mxd\Elk Creek Wetland Figures\Elk Creek Wetland Figures.aprx kathybehrend

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:	
county: Rock	township number: 103N
township name: Vienna	range number: 44W
nearest community: Magnolia	section number: 34

Aerial photograph or site visit date:
Saturday, August 21, 2021

Score using 1991-2020 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 2021	second prior month: June 2021	third prior month: May 2021
estimated precipitation total for this location:	3.76	1.97	3.17
there is a 30% chance this location will have less than:	1.43	3.80	2.77
there is a 30% chance this location will have more than:	4.09	5.60	4.77
type of month: dry normal wet	normal	dry	normal
monthly score	3 * 2 = 6	2 * 1 = 2	1 * 2 = 2
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	10 (Normal)		

Aerial photograph or site visit date:
Thursday, July 11, 2019

Score using 1991-2020 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 2019	second prior month: May 2019	third prior month: April 2019
estimated precipitation total for this location:	3.79	6.15	5.33
there is a 30% chance this location will have less than:	3.80	2.77	2.27
there is a 30% chance this location will have more than:	5.60	4.77	3.02
type of month: dry normal wet	dry	wet	wet
monthly score	3 * 1 = 3	2 * 3 = 6	1 * 3 = 3
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	12 (Normal)		

Aerial photograph or site visit date:
Friday, September 29, 2017

Score using 1991-2020 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: August 2017	second prior month: July 2017	third prior month: June 2017
estimated precipitation total for this location:	5.10	0.97	4.00
there is a 30% chance this location will have less than:	2.32	1.43	3.80
there is a 30% chance this location will have more than:	4.16	4.09	5.60
type of month: dry normal wet	wet	dry	normal
monthly score	3 * 3 = 9	2 * 1 = 2	1 * 2 = 2
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	13 (Normal)		

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:	
county: Rock	township number: 103N
township name: Vienna	range number: 44W
nearest community: Magnolia	section number: 34

Aerial photograph or site visit date:
Sunday, September 13, 2015

Score using 1991-2020 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: August 2015	second prior month: July 2015	third prior month: June 2015
estimated precipitation total for this location:	5.68	3.76	3.42
there is a 30% chance this location will have less than:	2.32	1.43	3.80
there is a 30% chance this location will have more than:	4.16	4.09	5.60
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)		

Aerial photograph or site visit date:
Friday, July 4, 2008

Score using 1991-2020 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 2008	second prior month: May 2008	third prior month: April 2008
estimated precipitation total for this location:	5.33	4.99	2.33
there is a 30% chance this location will have less than:	3.80	2.77	2.27
there is a 30% chance this location will have more than:	5.60	4.77	3.02
type of month: dry normal wet	normal	wet	normal
monthly score	3 * 2 = 6	2 * 3 = 6	1 * 2 = 2
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	14 (Normal)		

APPENDIX D: WETLAND CLASSIFICATION KEY

Cowardin Wetland Classification System

Systems	Subsystems	System Specific Classes
L - Lacustrine	(1) Limnetic (2) Littoral	RB, UB, AB, RS, US, EM,
P - Palustrine	None	RB, UB, AB, US, ML, EM, SS, FO
R - Riverine	(1) Tidal (2) Lower Perennial (3) Upper Perennial (4) Intermittent	RB, UB, SB, AB, RS, US, EM
Classes	**Water Regimes**	**Special Modifiers**
RB - Rock Bottom **UB** - Unconsolidated Bottom **SB** - Streambed **AB** - Aquatic Bed **RS** - Rocky Shore **US** - Unconsolidated Shore **EM** - Emergent **ML** - Moss Lichen **SS** - Scrub Shrub **FO** - Forested	**A** – Temporarily flooded **B** – Seasonally saturated **C** – Seasonally flooded **D** – Continuously saturated **E** – Seasonally flooded/saturated **F** – Semi-permanently flooded **G** – Intermittently exposed **H** – Permanently flooded **J** – Intermittently flooded **K** – Artificially flooded	**b** – Beaver **d** – Partly drained/ditched **f** – Farmed **m** – Managed **h** – Diked/impounded **r** – Artificial substrate **s** – Spoil **x** – Excavated

Source: Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC. (FGDC 2013)

Circular 39 Wetland Classification System

Type and Definition	Approximate Cowardin Equivalents
Type 1: Seasonally flooded basin	PEMA, PFOA
Type 2: Meadow	PEMB
Type 3: Shallow marsh	PEMC, PEMF, PSSH, PUBA, PUBC
Type 4: Deep marsh	PEMF, PEMG, PEMH, PUBB, PUBF, PABF, PABG, L2US, L2EMF, L2EMG, L2ABF
Type 5: Shallow open water	L2ABG, L2ABH, L2EMA, L2EMB, L2EMH, L2RS, L2UB, PABH, PUBG, PUBH
Type 6: Shrub swamp	PSSA, PSSC, PSSF, PSSG, PSS1B, PSS5B, PSS6B
Type 7: Wooded swamp	PFO1B, PFO5B, PFO6B, PFOC, PFOF
Type 8: Bog	PFO2B, PFO4B, PFO7B, PSS2B, PSS3B, PSS4B, PSS7B

Source: Wetlands in Minnesota, Minnesota Board of Water and Soil Resources (BWSR n.d.)