

Appendix K

Wetland Delineation Report & Agency Review

Bellrichard, Kathy

From: Bellrichard, Kathy
Sent: Monday, August 17, 2020 11:11 AM
To: rachel.wehner@co.freeborn.mn.us
Cc: Roth, Michael; Finocchiaro, Joseph; Holven, Adam
Subject: Hayward Solar Pre-Application Meeting
Attachments: Hayward_Wetlands_LGU_080620.pdf

Ms. Wehner,

Midwest Solar is developing the Hayward Solar utility-scale solar energy facility in Freeborn County. Tetra Tech has been contracted to conduct the wetland delineation survey and wetland permitting for the project. The wetland delineation field survey was completed earlier this spring and site plans are currently in development. A map showing the project location and wetland survey results is attached.

Midwest Solar would like to request a pre-application conference call to discuss the project, survey activities completed to date, and anticipated potential impacts to identify any concerns in advance of the Joint Application submission. Is there a time this week that you would be available for a call? Please let us know what dates/times would be best for you.

And if you have any questions or need anything else in the meantime, please let me know.

Thank you,

Kathy Bellrichard | Wetland Specialist
Direct (612) 643-2233 | Fax (612) 643-2201 | kathy.bellrichard@tetrattech.com

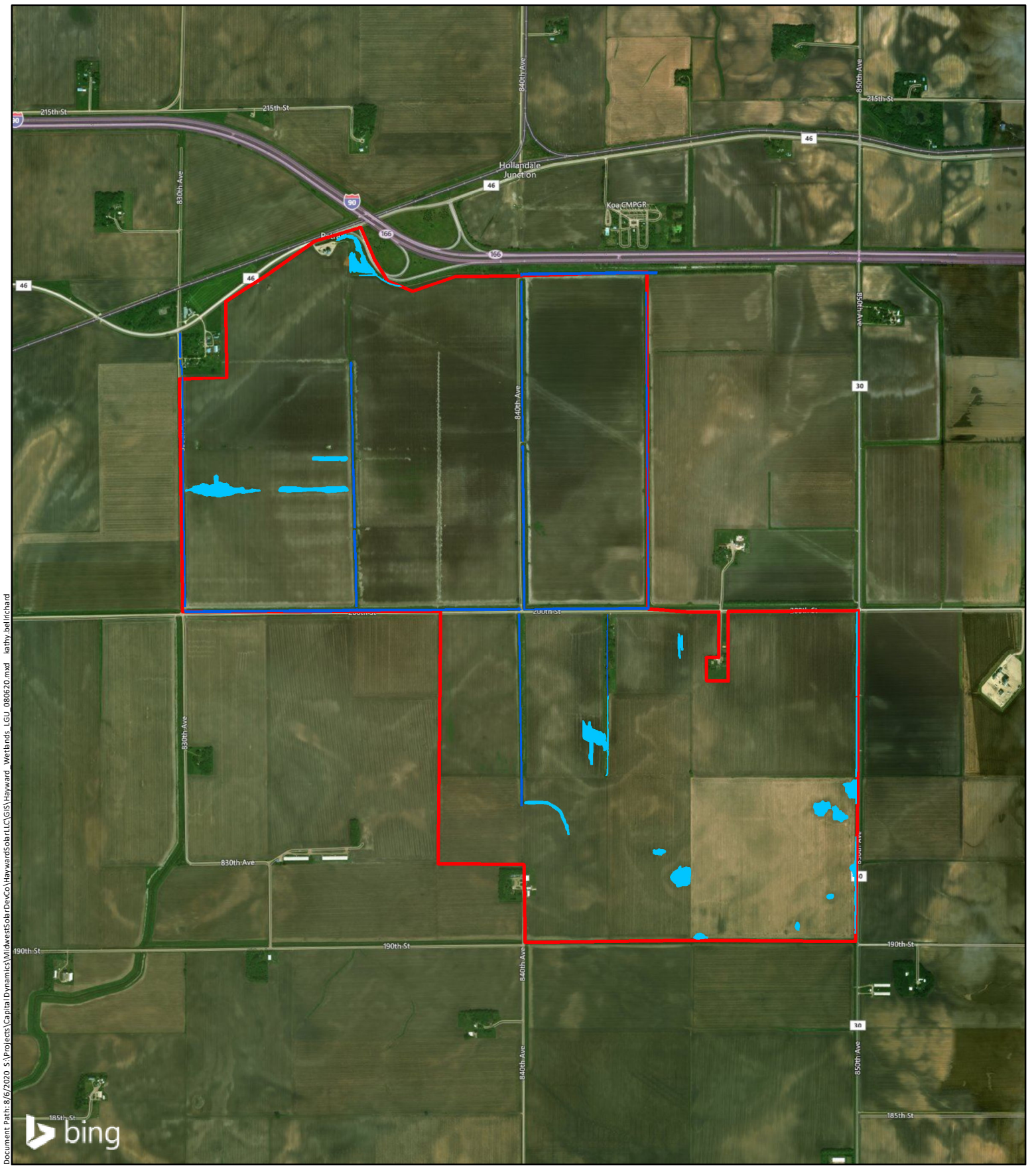
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2001 Killebrew Drive, Suite 141 | Bloomington, MN 55425 | tetrattech.com

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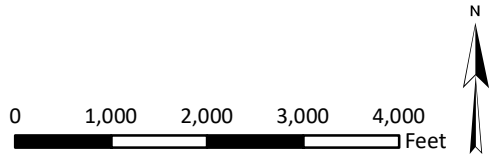


Document Path: 8/6/2020 5:\Projects\Capital Dynamics\MidwestSolar\DevCo\HaywardSolar\GIS\Hayward_Wetlands_LGU_080620.mxd kathy.bellrichard

Source: Map adapted from Bing Map Server; Project data by Hayward Solar, LLC and Tetra Tech.



- Project Area
- Wetland
- Stream



Project Location and Wetland Survey Results Hayward Solar Freeborn County, MN

August 2020

Hayward Solar
Freeborn County Pre-Application Meeting Agenda

8/19/2020

10:00 AM

Attendees: Freeborn County – Rachel Wehner
Midwest Solar/Tenaska – Mike Roth, Joe Finocchiaro
Tetra Tech – Kathy Bellrichard, Adam Holven

1) Project Introduction (Mike/Joe)

- a) 1,611-acre Project Area
- b) Site plans in development
- c) 150 MW

2) Wetlands and Waters Survey (Kathy)

- a) Field surveys conducted April 27-30, 2020
- b) 17 wetlands, 6 intermittent streams, and 2 perennial streams identified in the Project Area

3) Application Status

- a) Boundary and type application anticipated early September 2020
- b) TEP field review?

Wetlands and Waters Survey, and Natural Resources Inventory

Hayward Solar
County Highway 30 and 200th Street
Freeborn County, Minnesota



September 18, 2020

PRESENTED TO

Midwest Solar DevCo CEI, LLC
Hayward Solar LLC
10 East 53rd Street, 17th Floor
New York, NY 10022

PRESENTED BY

Tetra Tech, Inc.
2001 Killebrew Drive, Suite 141
Bloomington, MN 55425
(612) 643-2200

Apryl Jennrich
Certified MN Wetland Professional #1318

EXECUTIVE SUMMARY

This report presents the findings of a Wetlands and Waters Survey and Natural Resources Inventory completed for the proposed Hayward Solar site (the Project) located 2 miles east of the city of Hayward in Freeborn County, Minnesota. At this location, Midwest Solar DevCo CEI, LLC (Midwest Solar) and Hayward Solar LLC (Hayward) propose to develop a 150-megawatt (MW) solar facility on an approximately 1,611-acre site (Project Area).

A total of 25 wetland and water features were identified during the field survey for the Project. Tetra Tech surveyed 17 wetlands (PEMA, PEMAf, PEMAx, PEMB, PEMC, PEMCx), 6 intermittent streams (R4SBAX, R4SBCx), and 2 perennial stream (R2UBHx) within the Project Area.

An assessment of waters of the U.S. (WOTUS) criteria and potential U.S. Army Corps of Engineers (USACE) jurisdiction in accordance with USACE and U.S. Environmental Protection Agency (EPA) guidance for the inventoried wetland and water features found that 9 of the 17 surveyed wetlands and all 8 surveyed streams appear to meet the criteria to be considered a WOTUS. However, only the USACE can make the final determination on the jurisdiction of wetlands and waters. A pre-construction notification (PCN) and permit authorization from the USACE to use a nationwide permit (NWP) or regional general permit (RGP) will likely be required if Project development will cause permanent impacts that exceed 0.1 acre, or temporary impacts that exceed 0.5 acre or will be in place for greater than 90 days between May 15 and November 15.

All 17 delineated wetlands are also regulated under the Minnesota Wetland Conservation Act (WCA), which is locally administered by Freeborn County. Up to 2,000 square-feet of Type 1 wetland or up to 100 square feet of Type 3 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.

The Project Area was observed to be primarily cultivated cropland with grassy buffer strips. Three natural resource communities were identified within the Project Area. These communities consisted of approximately 84.6 acres of grassland/herbaceous, 3.4 acres of deciduous forest, and 2.6 acres of emergent herbaceous wetland.

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1.0 INTRODUCTION

1.1 PURPOSE

Midwest Solar DevCo CEI, LLC (Midwest Solar) and Hayward Solar LLC (Hayward) propose to develop the 150-megawatt (MW) Hayward Solar facility on an approximately 1,611-acre site located in Freeborn County, Minnesota (Project Area). Midwest Solar and Hayward have contracted with Tetra Tech, Inc., (Tetra Tech) to identify and delineate wetlands and waters and inventory natural resource communities within the Project Area. This report describes the Project Area, methods used, survey results and conclusions, and references used to support the conclusions. Appendices include figures illustrating the Project Area and survey results, select reviewed reference materials, and Project Area photographs.

1.2 SITE LOCATION AND ENVIRONMENTAL SETTING

The Project Area consists of approximately 1,611 acres of land and is located west of the intersection of County Highway 30 and 200th Street, approximately 2 miles east of the city of Hayward in Freeborn County, Minnesota (Appendix A: Figure 1). The Project Area is located in portions of Sections 11 through 14 in Township 102 North, Range 20 west.

The landscape in the vicinity of the Project Area is relatively flat to gently rolling agricultural land, with drainage facilitated by agricultural ditches and field tiles. The majority of the Project Area appears to be located within the interior of a large, shallow depression in the location of a former wetland, as depicted on the 1854 General Land Office (GLO) plats (U.S. Department of the Interior [USDOI] GLO 1854a and 1854b) and the 1874 A.T. Andreas atlas (Andreas 1874). The historic wetland appears to have been drained in the late 1800's. Drainages located within the Project Area generally flow from north to south or south to north toward County Ditch Number Twelve, which flows west through the center of the Project Area, then flows southwest and ultimately drains to Peter Lund Creek located approximately 1.5 miles southwest of the Project Area. Peter Lund Creek has been channelized but appears to have served as the original drainage of the historic wetland, connecting it to Lake Albert Lea approximately 3.2 miles west of the Project Area.

1.3 REGULATORY FRAMEWORK

1.3.1 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) has regulatory jurisdiction over waters of the U.S. (WOTUS) under the Clean Water Act (CWA) as defined by 33 CFR Part 328. The extent of the USACE regulatory jurisdiction over WOTUS was further refined by the USACE and U.S. Environmental Protection Agency (EPA) in a final rule defining the scope of waters protected under the CWA published in the Federal Register on May 14, 2020, which became effective as of June 22, 2020 (85 FR 22250). Under this rule, the USACE has regulatory jurisdiction over navigable waters; tributaries, lakes, and ponds that contribute surface water flow to navigable waters; and wetlands adjacent to these waters.

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.

The USACE determines the type of permit, if any, that may be required under the CWA for projects that affect WOTUS. The USACE authorizes certain activities in WOTUS under pre-issued Nationwide Permits (NWP) and Regional General Permits (RGPs). Permanent impacts of up to 0.5 acre for utility projects such as solar facilities are typically authorized by the Utility RGP or NWP 51 in Minnesota. 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 all projects in Minnesota.

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 generally does not apply to public waters and public waters wetlands that have been inventoried by the Minnesota Department of Natural Resources (MN DNR) 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. Unless the activity qualifies for a no-loss or an exemption decision, 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 is administered by Local Government Units (LGU). Freeborn County is the LGU responsible for administering the WCA for the Project Area.

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 March 29, 2017 and for the Utility RGP in a letter dated February 13, 2018 (MPCA 2017 and MPCA 2018.)

2.0 METHODS

2.1 EXISTING INFORMATION REVIEW

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

- National Wetlands Inventory (NWI) (US Fish and Wildlife Service [USFWS] 2020);
- National Hydrography Dataset (NHD) (United States Geological Survey [USGS] 2019a);
- MN DNR Public Waters Inventory (PWI) (MN DNR 2019);
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) for Freeborn County, Minnesota (FEMA 2019);
- Natural Resources Conservation Service (NRCS) Soil Survey Geographic (gSSURGO) Soils (NRCS 2020a);
- MN DNR 2-foot elevation contours (MN DNR 2020);
- Aerial photography from 2005, 2008, 2010, 2015, and 2019 from U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) National Agricultural Imagery Program (NAIP);
- Aerial photography from 2013, 2015, and 2017 from Minnesota Geospatial Commons (Minnesota Geospatial Commons 2019);
- Historical precipitation data from the Minnesota State Climatology Office (Minnesota State Climatology Office 2020); and
- 2016 National Land Cover Database (NLCD) (USGS 2019b).

2.2 DESKTOP WETLANDS AND WATERS MAPPING

Prior to and during the wetlands and waters field survey, available information was reviewed to identify areas that may exhibit wetland and other surface water characteristics. These data layers were evaluated to make probable wetland and waters determinations.

Aerial photographs from the USDA FSA Aerial Photography Field Office (APFO) NAIP were reviewed in combination with the NWI, NHD, PWI, SSURGO soils, elevation data, and climate data to identify potential wetlands and waters (desktop wetlands and waters) within the Project Area. Using methods described by USACE and BWSR (2016), the aerial photographs were reviewed for wetland signatures, and antecedent precipitation was evaluated to determine if the antecedent precipitation was 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 1. 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

All desktop wetlands and waters within the Project Area were investigated as well as any other potential wetlands or waters observed during the survey that were not identified during the desktop data review. 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). 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, soils, and hydrology data was recorded on 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 3.4 (USACE 2018). 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.

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 established only within the Project Area. If the boundary extended outside of the Project Area, only that portion of the boundary within the Project Area was delineated, and observations regarding that portion of the feature extending outside of the Project Area were recorded. Tetra Tech photographed

each wetland and classified it 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-wetland 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 2020).

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 (Table 1) 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.

2.4 NATURAL RESOURCES INVENTORY

Tetra Tech reviewed the Project Area to identify any natural resource communities, defined as any parts of the Project Area that are not cultivated cropland or with otherwise human manipulated vegetation. Roadside ditches and other minor vegetated areas (e.g. swales) were not considered to represent natural resource communities. Natural resource communities were identified by reviewing a recent aerial photograph and conducting a pedestrian survey of the Project Area. The natural resource communities identified in the Project Area were classified

according to the predominant vegetation present. Natural resource communities were only mapped within the Project Area.

3.0 RESULTS

3.1 EXISTING INFORMATION REVIEW AND DESKTOP MAPPING

3.1.1 National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD)

There are eight NWI mapped wetlands and 13 NHD mapped streams within the Project Area (Appendix A: Figure 2). The NWI mapped features in the Project Area include seven PEM1Af¹ freshwater emergent wetlands, and one R5UBFx riverine wetland. The seven mapped PEM1Af wetlands are between 0.6 acre and 3.1 acres in size and are generally located in the southeastern corner of the Project Area. The mapped R5UBFx riverine wetland corresponds to numerous interconnected excavated ditches located throughout the Project Area.

The NHD mapped streams include seven segments of unnamed ditches, one segment of County Ditch Number Fortyseven, and five segments of County Ditch Number Twelve. County Ditch Number Fortyseven is located along the southern boundary of the Project Area. County Ditch Number Twelve flows west through the central portion of the Project Area. The NHD-mapped ditches align approximately with the R5UBFx NWI mapped riverine wetland. There are no NHD mapped waterbodies mapped within the Project Area.

3.1.2 Public Waters Inventory (PWI)

There are no Public Waters, Public Waters Wetlands, or Public Watercourses mapped within the Project Area; however, there are mapped waters in the surrounding area (Appendix A: Figure 2). The PWI shows that the closest public water is an unnamed stream located approximately 0.5 mile southwest of the Project Area.

3.1.3 Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL)

Flood hazard data for the Project Area were obtained from FEMA (FEMA 2019). The Project Area is located outside of mapped flood zones (FEMA 2019).

3.1.4 Soil Survey Geographic (SSURGO) Soils

Soils data for the Project Area were obtained from the USDA NRCS (NRCS 2020a). 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 on the National List of Hydric Soils (NRCS 2020b).

- Non-hydric – all soils series components rated as non-hydric

¹ See Appendix E for definitions of Cowardin wetland classification codes

- 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 majority of the soils in the Project Area are classified as hydric (80.3 percent of the Project Area) or predominantly hydric (16 percent of the Project Area); the remaining soils are classified as predominantly non-hydric (3.7 percent of the Project Area) (Appendix A: Figure 3). The predominantly non-hydric soils are limited to the southern half of the Project Area, primarily in the southwest corner of the Project Area.

3.1.5 Desktop Wetlands and Waters Mapping

Aerial photographs in combination with antecedent precipitation data from the Minnesota Climatology Office tool (Minnesota State Climatology Office 2020), MN DNR 2-foot elevation contours (MN DNR 2020), and the NWI were reviewed to identify potential wetlands and waters (desktop wetlands and waters) in the Project Area. The reviewed aerial photographs included images from July 2013, October 2015, and September 2017 (Minnesota Geospatial Commons 2019). Aerial photographs from 2013 had wet antecedent precipitation, aerial photographs from 2015 had normal antecedent precipitation, and aerial photographs from September 2017 had dry antecedent precipitation. Antecedent precipitation worksheets for the reviewed aerial photographs are included as Appendix D.

The desktop data review found 32 desktop wetlands and waters within the Project Area totaling approximately 121.2 acres (Appendix A: Figure 4). Just under half (13) of the desktop wetlands and waters aligned with resources mapped in the NWI or NHD. The remaining 19 desktop wetlands and waters were identified based only on the aerial photograph review.

3.1.6 National Land Cover Database (NLCD)

According to the 2016 National Land Cover Dataset (NLCD) (USGS 2019b), land cover in the Project Area is dominated by cultivated crops (96 percent of the Project Area). A review of the June 2017 aerial photograph confirmed that the Project Area is primarily agricultural cropland with developed, open space and residences (USDA FSA APFO 2017).

3.2 WETLANDS AND WATERS SURVEY

The wetlands and waters field survey was conducted from April 27 to 30, 2020, 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 (2020). Antecedent precipitation data are presented in Table 2.

Table 2. Antecedent Precipitation Analysis

Precipitation data for target wetland location:			
County: Freeborn	Township Number: 102N	Site visit date: April 27-April 30, 2020	
Township Name: Hayward	Range Number: 20W		
Nearest Community: Holland Junctn	Section Number: 13		
Score using 1981-2010 normal period			
Values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates	first prior month: April 2020	second prior month: March 2020	third prior month: February 2020
estimated precipitation total for this location:	1.49R	2.64R	1.19R
there is a 30% chance this location will have less than:	2.29	1.28	0.51
there is a 30% chance this location will have more than:	4.32	2.32	1.15
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)		

Tetra Tech identified a total of 17 wetlands, 6 intermittent streams, and 2 perennial streams in the Project Area during the field survey. These resources are described in detail below and in Appendix B and are depicted on Figure 4 (Appendix A). Wetland determination data forms and photographs for delineated wetlands and non-wetland areas are provided in Appendix C. A key to the Cowardin and Circular 39 wetland classification systems is included in Appendix E. Photographs for surveyed streams are included in Appendix F.

All 32 desktop wetlands and waters areas in the Project Area were reviewed during the April 2020 site visit. Wetlands or waters were confirmed to be present at 18 of the 32 reviewed desktop wetlands and waters locations in the field and were delineated based on the observations made at the time of the field survey. The 14 remaining field-checked desktop wetlands and waters were determined to be non-wetlands within the Project Area. Some desktop wetlands and waters were mapped as multiple features, while others were combined into a single feature, so the 18 field-confirmed desktop wetland and waters areas were delineated as 16 wetlands, 6 intermittent streams, and 2 perennial streams. Five additional areas were investigated during the field survey because they exhibited wetland hydrology; however, only one of the five was determined to be wetland. The one additional wetland was located within a roadside ditch.

3.2.1 Wetlands

Fourteen of the 17 wetlands delineated during the field survey were farmed or excavated Type 1, Seasonally Flooded Basins (PEMAf, PEMAx). Two wetlands delineated during the survey (WA013 and WA015) were observed to be a combination of Type 1, Seasonally Flooded Basin and Type 3, Shallow Marsh (PEMAf/PEMAx/PEMCx). The shallow marsh (Type 3, PEMCx) components of these wetlands were associated with excavated ditches. One wetland delineated during the survey (WA039) was observed to be a combination of Type 1, Seasonally Flooded Basin, Type 3, Shallow Marsh, and Type 2, Wet Meadow (PEMA/PEMC/PEMB/PEMCx). This wetland was located in an uncultivated area in the northwest corner of the Project Area and extended into an excavated ditch along the

highway. Some linear, excavated drainages observed in the Project Area lacked bed and/or bank characteristics, which precluded them from being streams but did meet the criteria to be considered wetlands.

General observations of wetland vegetation, soils, and hydrology conditions recorded during the field surveys are summarized below.

3.2.1.1 Vegetation

Vegetation in the majority of wetlands was observed to be disturbed and unvegetated due to annual agricultural cultivation. Natural and weedy vegetation commonly observed in seasonally flooded wetlands not disturbed by agriculture consisted of grasses including reed canary grass (*Phalaris arundinacea*) and various forbs including stinging nettle (*Urtica dioica*), wild cucumber (*Echinocystis lobata*), and sticky-willy (*Galium aparine*). Vegetation in the shallow marsh wetlands was dominated by cat-tails (*Typhus* spp.) with lesser amounts of bulrushes (*Scirpus* spp.) also observed. Vegetation observed in the wet meadow wetland included rushes (*Juncus* spp.), sedges (*Carex* spp.), and foxtail barley grass (*Hordeum jubatum*).

Uplands observed near wetlands within the Project Area were predominantly harvested agricultural fields previously cultivated with corn (*Zea mays*) and soybeans (*Glycine max*). In areas that were not cultivated or harvested, upland vegetation was typically dominated by grasses primarily including smooth brome (*Bromus inermis*).

3.2.1.2 Soils

Soils observed within the Project Area were typically loamy or clayey with textures ranging from silt loam to clay, but some areas with sandy soil were also encountered, particularly in the northeast quarter of Section 13. A very thick (15 to 40 or more inches), black (10YR 2/1) A horizon was observed in most locations. As a result, the thick dark surface (A12) hydric soil indicator was documented the most often at wetland sample plots.

3.2.1.3 Hydrology

Primary wetland hydrology indicators were not frequently observed; however, those that were documented include high water table (A2), saturation (A3), drift deposits (B3), and sparsely vegetated concave surface (B8). Hydrology criteria were most often established based on observations of secondary wetland hydrology indicators. Secondary hydrology indicators that were documented most frequently include geomorphic position (D2), saturation visible on aerial imagery (C9), stunted or stressed vegetation (C9), and surface soil cracks (B6).

3.2.2 Streams

The surface water drainage system in the Project Area was primarily observed to consist of linear, excavated ditches, including all eight of the surveyed streams. Stream SA009 flows west through the central part of the Project Area on the north side of 200th Street and was classified as perennial (R2UBHx). The stream generally aligns with the NHD-mapped County Ditch Number Twelve. At the time of the field survey, approximately one foot of moderate

velocity flowing water was observed, and the substrate consisted of sand, cobble, fine sediments (silt and clay), and muck. All the other streams surveyed in the Project Area drain to SA009.

Streams SA008, SA012, SA042, and SA050 were classified as intermittent (R4SBCx) and flow south to discharge into SA009. Streams SA013 and SA053 were also classified as intermittent (R4SBAX and R4SBCx) and flow north to discharge into SA009. These streams all generally align with NHD-mapped unnamed intermittent streams. Water depths observed at these streams at the time of the field survey generally ranged from 8 to 12 inches and flow was low velocity or stagnant, with the exception of SA013 that had a water depth of 3 inches and moderate flow velocity. The substrate of these streams typically consisted of fine sediments (silt and clay) and muck, with sand, cobble, gravel, and detritus also present in some locations.

Stream SA049 flows west along the northern Project Area boundary and discharges into SA012. This stream was classified as perennial (R2UBHx) and generally aligns with an NHD-mapped unnamed intermittent stream. Approximately 2 feet of low velocity flowing water was observed at the time of the field survey, and the substrate consisted of fine sediments (silt and clay), and muck.

3.2.3 Non-Wetland Areas

Fifteen desktop wetlands and waters locations were determined to be non-wetland in the Project Area during the field survey. Five additional wetlands and waters locations that were not identified during desktop review were also investigated during the field survey, four of which were determined to be non-wetland in the Project Area. The 19 non-wetland features were reviewed for wetland signatures in each of the aerial photographs from the following five years with normal antecedent precipitation: June 2005 (USDA FSA APFO 2005), August 2008 (USDA FSA APFO 2008), July 2010 (USDA FSA APFO 2010), October 2015 (USDA FSA APFO 2015), and August 2019 (USDA FSA APFO 2019). The results are summarized in Table 3. Aerial photographs and antecedent precipitation worksheets are included in Appendix D.

Nine of the 19 reviewed non-wetland areas exhibited a wetland signature in less than 50 percent of reviewed aerial photographs, which supports the field observations that wetland hydrology is not present at these locations. The 10 remaining non-wetland areas exhibited a wetland signature in more than 50 percent of reviewed aerial photographs. However, field observations did not support a wetland determination at these locations. All 10 non-wetland areas were located in agricultural fields. Six of the non-wetland areas (NWA026, NWA027, NWA028, NWA029, NWA030, and NWA031) were located in the northwest quarter of Section 13 and did not meet hydrology or hydric soils criteria. Soils observed at these locations were typically loamy to clayey soils at the surface with sandy soils beginning at a depth of 8 to 12 inches. The presence of these shallow sandy soils may increase drainage at these locations, resulting in the crop stress aerial photograph signatures observed. The remaining four non-wetland areas (NWA018, NWA023, NWA024, and NWA044) were observed to meet hydrology criteria but failed to meet any hydric soils criteria.

Table 3. Observed Wetland Signatures in Non-Wetland Areas in Normal Years

Non-Wetland Area ¹	Photo Interpretation ²					# of Years with Wet Signatures	% of Years with Wet Signatures ³
	June 22, 2005	August 1, 2008	July 2, 2010	October 1, 2015	August 1, 2019		
NWA004	NV	CS	NV	NV	NV	1	20%
NWA017	NV	NV	NV	NV	DO	1	20%
NWA018	NV	CS	CS	NV	CS	3	60%
NWA020	CS	CS	NV	NV	NV	2	40%
NWA022	NV	NV	NV	NV	DO	1	20%
NWA023	CS	CS	NV	NV	DO	3	60%
NWA024	CS	CS	NV	NV	CS/DO	3	60%
NWA026	NV	CS	NV	NV	CS	3	60%
NWA027	CS	CS	NV	NV	CS	3	60%
NWA028	CS	NV	NV	CS	CS	3	60%
NWA029	CS	NV	NV	CS	CS	3	60%
NWA030	CS	NV	NV	CS	CS	3	60%
NWA031	CS	NV	NV	CS	CS	3	60%
NWA032	NV	NV	NV	CS	NV	1	20%
NWA034	NV	CS	NV	CS	NV	2	40%
NWA041	NV	NV	NV	NV	NV	0	0%
NWA043	NV	NV	NV	CS	CS	2	40%
NWA044	NV	NV	CS	CS	DO	3	60%
NWA052	NV	NV	NV	NV	NV	0	0%

¹ Non-wetland areas NWA017, NWA018, NWA022, and NWA023 were not identified during the initial desktop review.

² Photo Interpretation codes are provided in Table 1. Desktop wetland review areas and sample points are depicted on aerial photographs in Appendix D.

³ Wetland signature in more than 50% of reviewed normal years are **bold**.

3.3 REGULATORY IMPLICATIONS

3.3.1 U.S. Army Corps of Engineers

Each of the identified wetlands and waters was reviewed for potential USACE jurisdiction as described in Section 1.3.1 of this report, and a preliminary jurisdictional determination was recommended for each. Of the wetlands and waters located in the Project Area, 9 wetlands, 6 intermittent streams, and 2 perennial streams identified during the survey may be considered WOTUS due to a potential hydrologic connection to the Mississippi River. Therefore, these wetlands and waters would likely be subject to USACE regulatory jurisdiction. Only the USACE can make the final determination on the jurisdiction of wetlands and other waters. A pre-construction notification (PCN) and permit authorization from the USACE to use NWP 51 or the Utility RGP will likely be required if Project development will cause permanent impacts that exceed 0.1 acre, or temporary impacts that exceed 0.5 acre or will be in place for greater than 90 days between May 15 and November 15.

3.3.2 Minnesota Wetland Conservation Act

All 17 delineated wetlands are regulated under the WCA. Certain wetland activities are exempt from the WCA, allowing projects with minimal impact or projects located on land where certain pre-established land uses are present to proceed without regulation. 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 wetland or up to 100 square feet of Type 3 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.

3.3.3 Minnesota Department of Natural Resources

There are no public waters or public waters wetlands located within the Project Area (Section 3.1.2). The proposed Project would not require a Public Waters Work Permit from the DNR.

3.4 NATURAL RESOURCES INVENTORY

The site visit conducted from April 27 to 30, 2020 (see Section 3.2) identified three natural resource communities in the Project Area (Appendix A: Figure 5). The grassland/herbaceous community totaled approximately 84.6 acres and was primarily observed to be grassy buffer strips located along most of the excavated streams and wetlands in the Project Area. The grassland/herbaceous community was dominated by smooth brome and reed canary grass with stinging nettle and common milkweed (*Asclepias syriaca*) also observed. The deciduous forest community was observed to typically be clusters of trees along field edges that encompassed approximately 3.4 acres. The deciduous forest community was typically dominated by eastern cottonwood (*Populus deltoides*) with an understory similar to the grassland/herbaceous community. The emergent herbaceous wetland community corresponds with wetland WA039 (2.6 acres) and is located in the northwestern corner of the Project Area. Dominant vegetation observed included reed canary grass, cat-tails (*Typha* spp.), sedges (*Carex* spp.), and rushes (*Juncus* spp.). Representative natural resource area photographs are included in Appendix G.

4.0 CONCLUSIONS

A total of 25 wetland and water features were identified during the field survey for the Project. Tetra Tech surveyed 17 wetlands (PEMA, PEMAf, PEMAx, PEMB, PEMC, PEMCx), 6 intermittent streams (R4SBAX, R4SBCx), and 2 perennial stream (R2UBHx) within the Project Area.

An assessment of WOTUS criteria and potential USACE jurisdiction in accordance with USACE and USEPA guidance for the inventoried wetland and water features found that 9 of the 17 surveyed wetlands and all 8 surveyed streams appear to meet the criteria to be considered a WOTUS. However, only the USACE can make the final determination on the jurisdiction of wetlands and waters. A PCN and permit authorization from the USACE to use a NWP or RGP will likely be required if Project development will cause permanent impacts that exceed 0.1 acre, or temporary impacts that exceed 0.5 acre or will be in place for greater than 90 days between May 15 and November 15.

All 17 delineated wetlands are also regulated under the WCA, which is locally administered by Freeborn County. Up to 2,000 square-feet of Type 1 wetland or up to 100 square feet of Type 3 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.

The Project Area was observed to be primarily cultivated cropland with grassy buffer strips. Three natural resource communities were identified within the Project Area. These communities consisted of approximately 84.6 acres of grassland/herbaceous, 3.4 acres of deciduous forest, and 2.6 acres of emergent herbaceous wetland.

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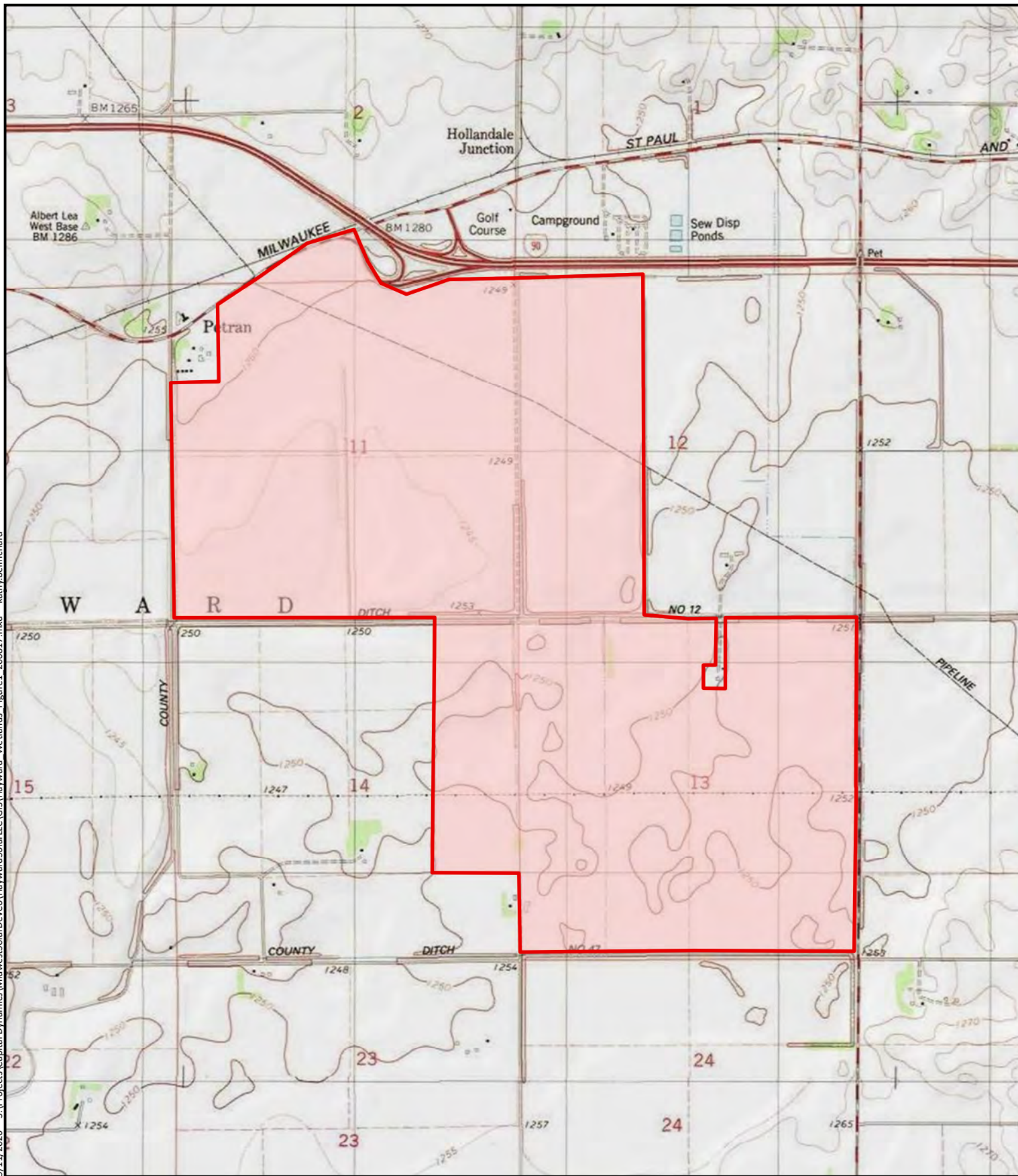
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APPENDIX A: FIGURES 1 – 5

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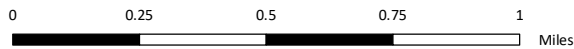


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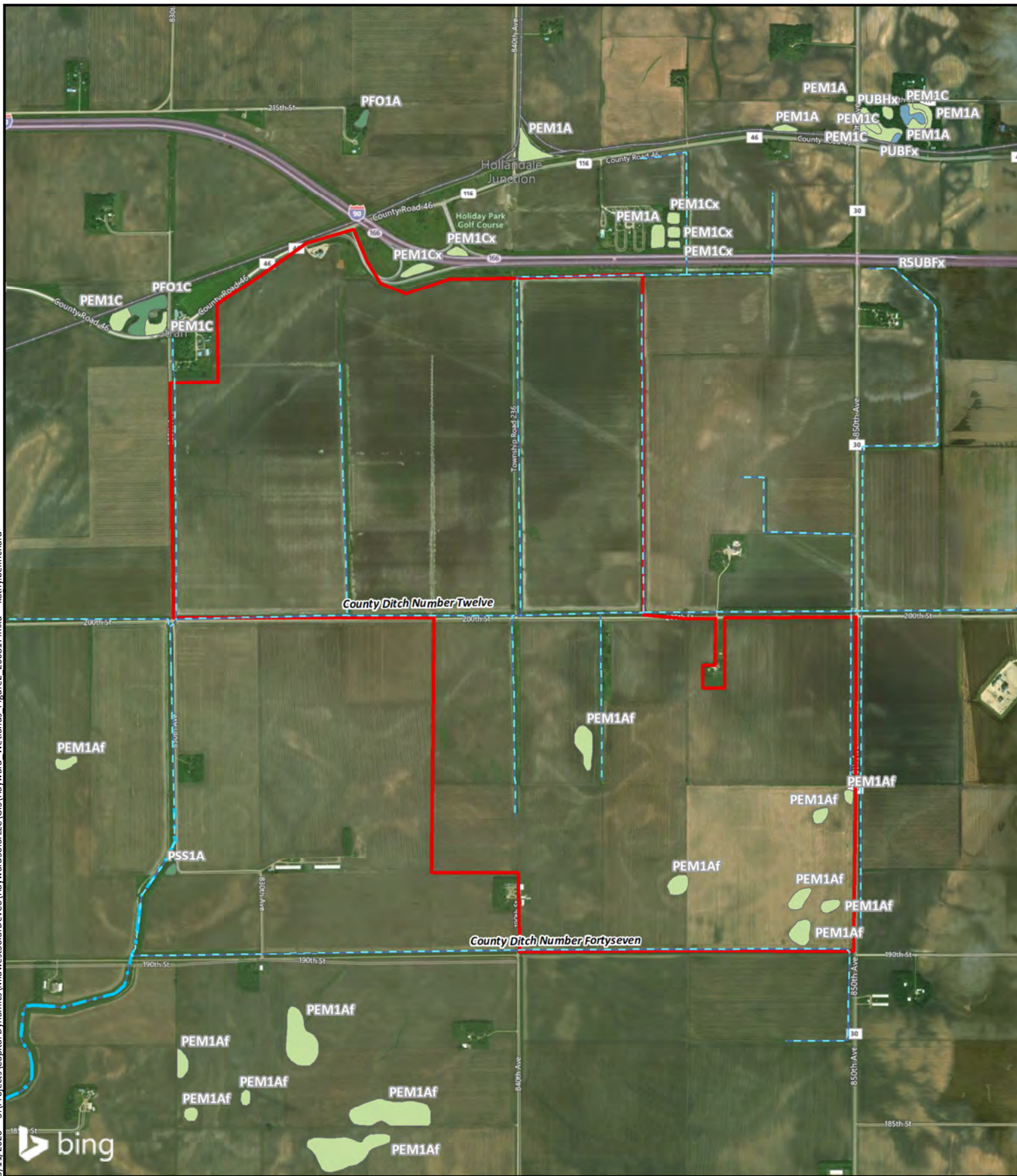


Project Area

Figure 1 - Project Location
Hayward Solar
County Highway 30 and 200th Street
Freeborn County, Minnesota







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Source: Source: Map adapted from Bing Maps Hybrid Map Server; NWI by USFWS; NHD by USGS; PWI by MN DNR. Scale: 1:24,000

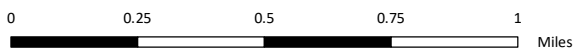


NWI Wetlands

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

NHD Classification

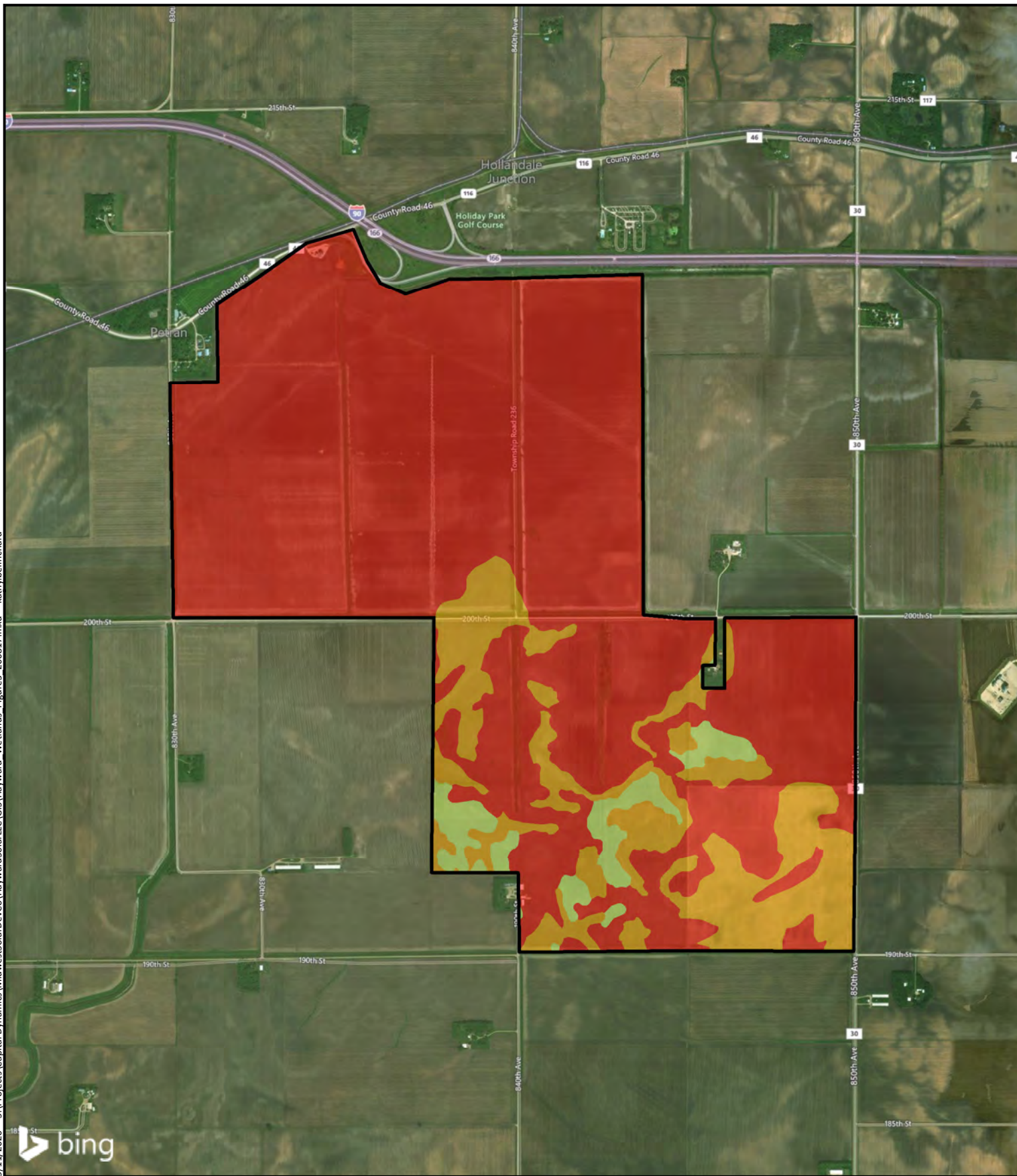
-  Ditch
-  Watercourse
-  Project Area



**Figure 2 - NWI, NHD, and PWI
Hayward Solar
County Highway 30 and 200th Street
Freeborn County, Minnesota**



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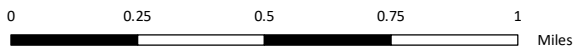
Source: Map adapted from Bing Maps Hybrid; gSSURGO Soils by U.S. Department of Agriculture. Scale: 1:24,000



Hydric Classification

- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Predominantly Non-Hydric (1 to 32%)

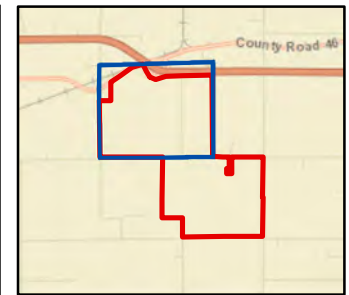
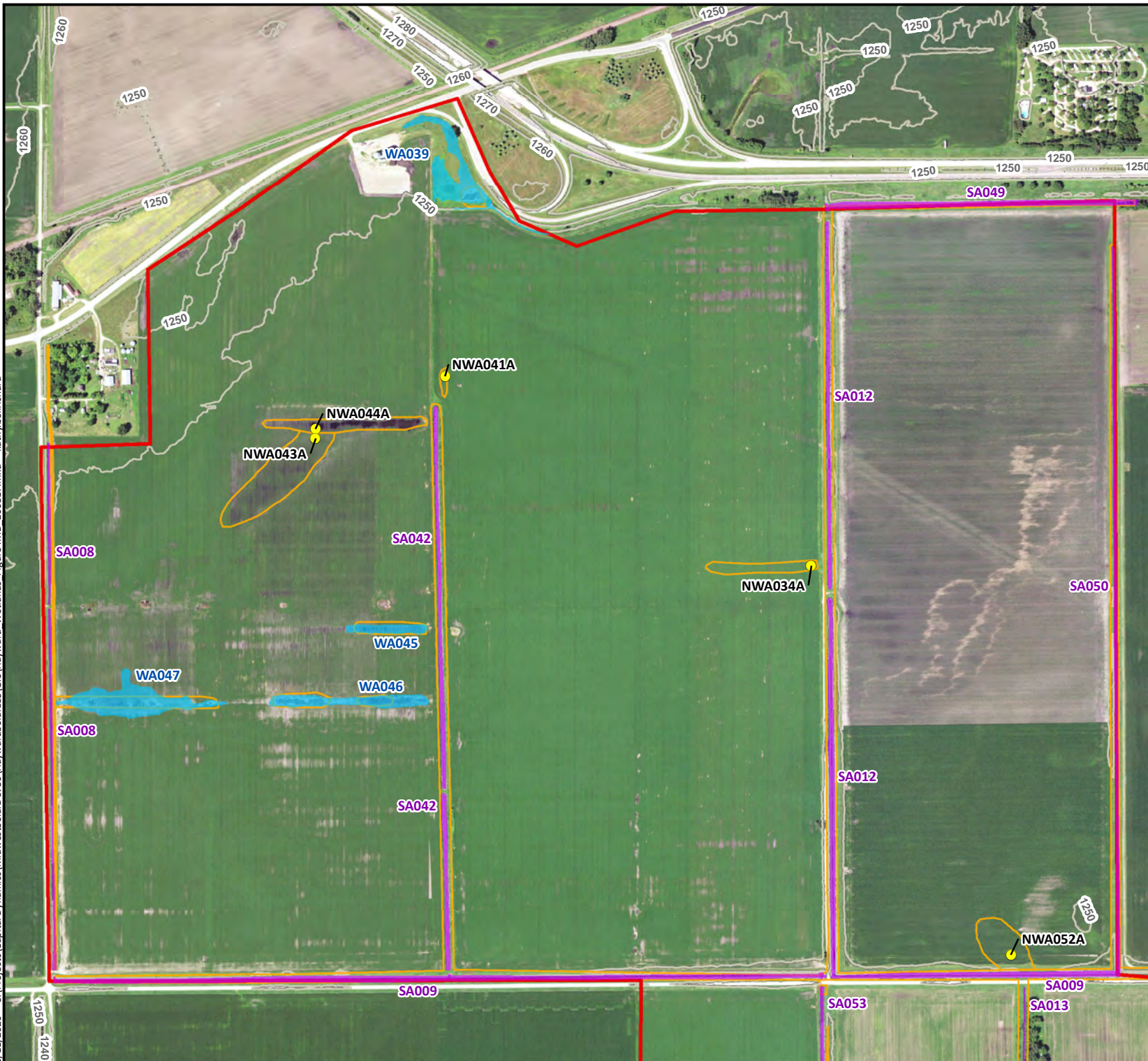
Project Area



**Figure 3 - SSURGO Soils
Hayward Solar
County Highway 30 and 200th Street
Freeborn County, Minnesota**



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- Non-Wetland Sample Point
 - Desktop Wetlands and Waters
 - Surveyed Wetland
 - Surveyed Stream
- Contour**
- Index
 - - - Index Depression
 - Project Area

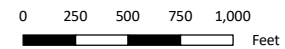
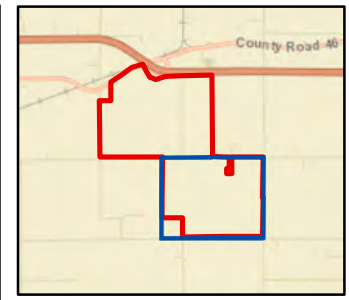
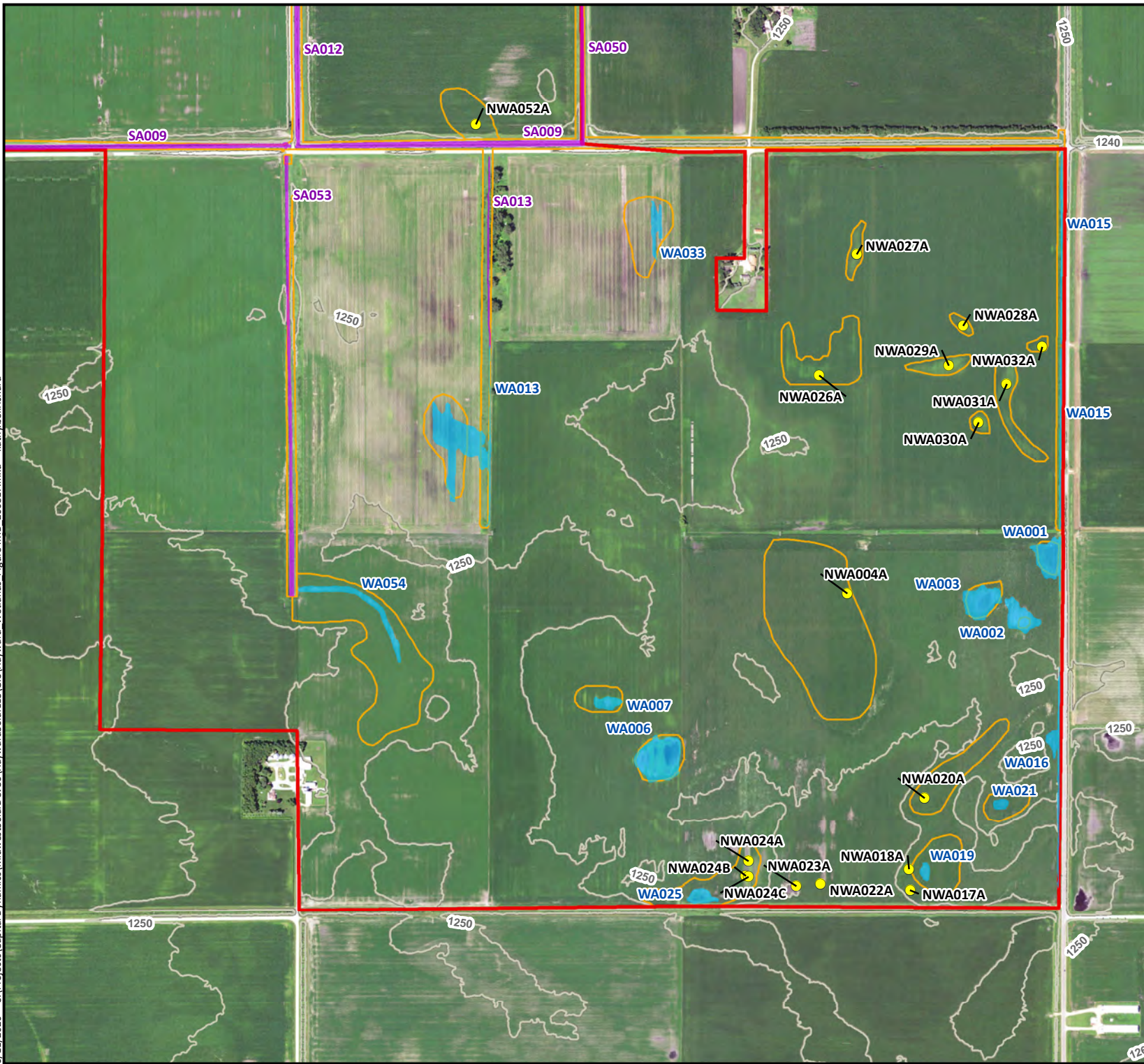


Figure 4 - North Wetlands and Waters Survey Results Hayward Solar County Highway 30 and 200th Street Freeborn County, Minnesota



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech Field wetlands and waters. Scale: 1:11,000

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- Non-Wetland Sample Point
 - Desktop Wetlands and Waters
 - Surveyed Wetland
 - Surveyed Stream
- Contour**
- Index
 - Index Depression
 - Project Area

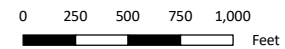
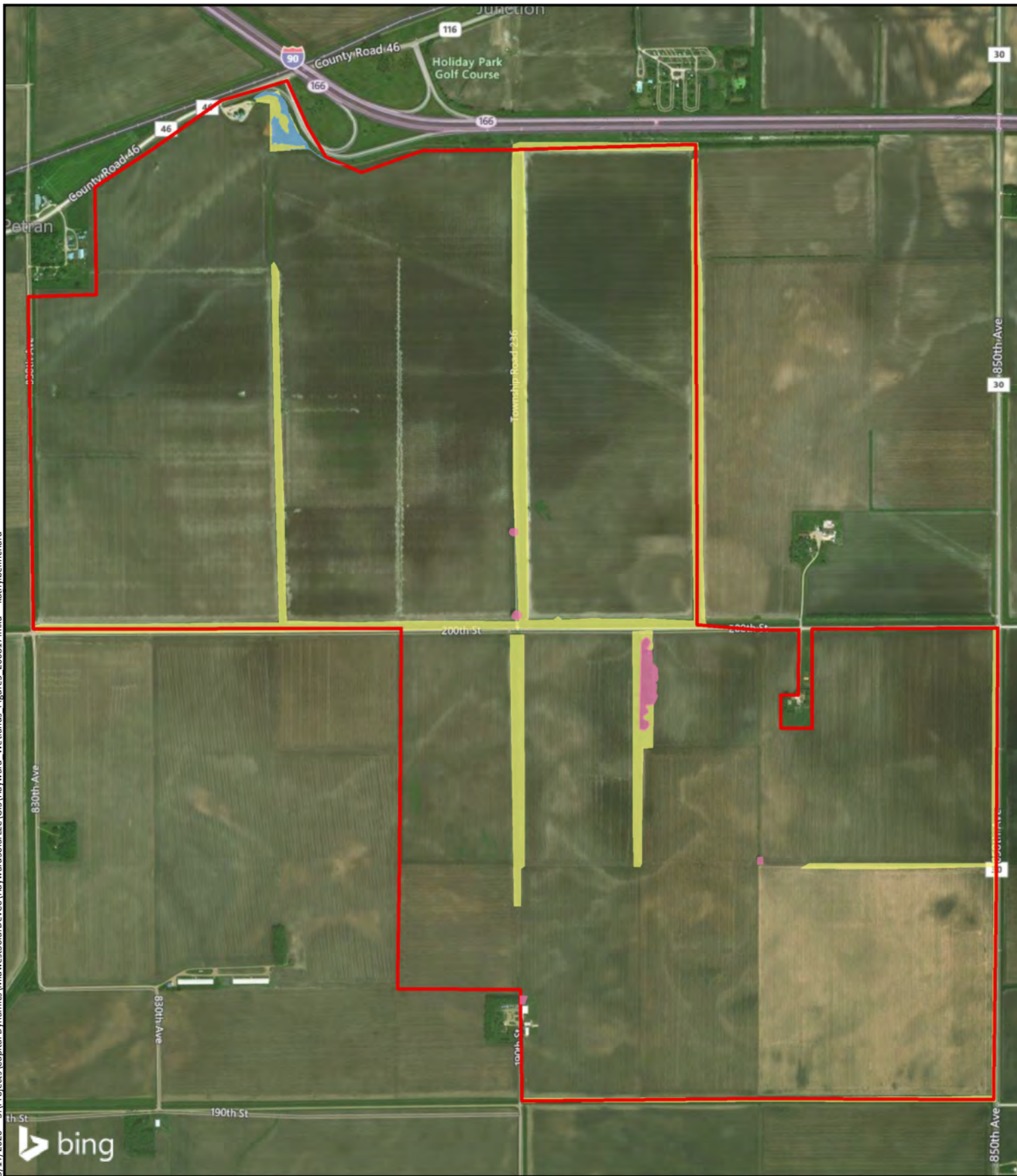


Figure 4 - South Wetlands and Waters Survey Results Hayward Solar County Highway 30 and 200th Street Freeborn County, Minnesota



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech Field wetlands and waters. Scale: 1:11,000

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Source: Map adapted from Bing Maps Hybrid; Tetra Tech natural resources. Scale: 1:17,000



Natural Resource Community

- Deciduous Forest
- Grassland/Herbaceous
- Emergent Herbaceous Wetland
- Project Area

**Figure 5 - Natural Resources Inventory Results
Hayward Solar
County Highway 30 and 200th Street
Freeborn County, Minnesota**



APPENDIX B: SURVEYED WETLANDS AND WATERS

Table B-1: Surveyed Streams

Stream ID	Stream Type	Cowardin Class ¹	Stream Name	Average Width (feet)	Surveyed Length (feet)	Surveyed Area (acres)	USACE Jurisdiction	Figure 4 Grid ID
SA008	Intermittent	R4SBCx	-	15	3,600	1.12	Yes	North
SA009	Perennial	R2UBHx	County Ditch Number 12	28	7,270	5.00	Yes	North
SA012	Intermittent	R4SBCx	-	30	5,200	2.83	Yes	North
SA013	Intermittent	R4SBAx	-	5	1,300	0.15	Yes	South
SA042	Intermittent	R4SBCx	-	20	3,825	2.06	Yes	North
SA049	Perennial	R2UBHx	-	35	2,130	1.72	Yes	North
SA050	Intermittent	R4SBCx	-	18	4,995	1.91	Yes	North
SA053	Intermittent	R4SBCx	-	18	3,015	1.26	Yes	South

Table B-2: Surveyed Wetlands

Wetland ID	Wetland Classification ¹		Surveyed Area (acres)	USACE Jurisdiction	Figure 4 Grid ID
	Circular 39	Cowardin			
WA001	Type 1	PEMAf	0.97	No	South
WA002	Type 1	PEMAf	0.77	No	South
WA003	Type 1	PEMAf	1.01	No	South
WA006	Type 1	PEMAf	1.75	No	South
WA007	Type 1	PEMAf	0.31	No	South
WA013	Type 1/Type 3	PEMAf/PEMAx/PEMCx	2.69	Yes	South
WA015	Type 1/Type 3	PEMAx/PEMCx	0.77	Yes	South
WA016	Type 1	PEMAx	0.72	Yes	South
WA019	Type 1	PEMAf	0.15	No	South
WA021	Type 1	PEMAf	0.15	No	South
WA025	Type 1	PEMAf	0.35	Yes	South
WA033	Type 1	PEMAf	0.43	No	South
WA039	Type 1/Type 3/Type 2	PEMA/PEMC/PEMB/PEMCx	2.63	Yes	North
WA045	Type 1	PEMAf	0.75	Yes	North
WA046	Type 1	PEMAf	1.77	Yes	North
WA047	Type 1	PEMAf	3.26	Yes	North
WA054	Type 1	PEMAf	0.89	Yes	South

¹ See Appendix E for a key to the Circular 39 and Cowardin wetland classification systems.

APPENDIX C: WETLAND DETERMINATION DATA FORMS

WA001

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA001A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 13.19" Long: -93° 10' 11.44" Datum: WGS84
 Soil Map Unit Name: Kossner muck NWI Classification: PEM1Af

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	_____ Dominance test is >50%	
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* <u>X</u> (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)
 Ag field, 90% bare ground with corn chaff

SOIL

Sampling Point: WA001A

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**		
0-19	10YR 2/1	100					Silt loam	organic rich
19-22	10YR 2/1	100					Silty clay	
22-30	5Y 5/2	95	10YR 4/6	5	C	PL	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>27</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA001B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 13.13" Long: -93° 10' 11.67" Datum: WGS84
 Soil Map Unit Name: Klossner muck NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>0</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>0</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				
1					
2					
		<u>0</u>	= Total Cover		

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? N

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

SOIL

Sampling Point: WA001B

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**		
0-23	10YR 2/1	100					Silt loam	Ogranic rich
23-35	5Y 5/2	97	10YR 4/6	3	C	PL	Silty clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>27</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA001 overview looking northeast.



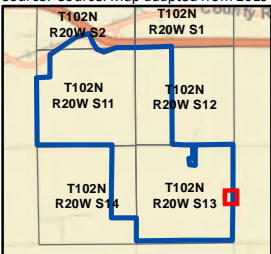
Wetland Sample Point WA001A.



Non-wetland sample point WA001B.



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000

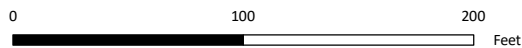


Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA001
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA002

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA002A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 9.23" Long: -93° 10' 12.23" Datum: WGS84
 Soil Map Unit Name: Dassel mucky loam NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	_____ Dominance test is >50%	
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* <u>X</u> (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)
 ragweed and barnyard grass, dead from last year

SOIL

Sampling Point: WA002A

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**		
0-15	10YR 2/1	100					Silt loam	
15-17	10YR 2/1	95	10YR 4/6	5	C	PL	Silty clay	
17-25	5Y 5/2	95	10YR 4/6	5	C	PL	Sandy clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>25</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA002B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None
 Slope (%): 1 Lat: 43° 38' 9.37" Long: -93° 10' 12.14" Datum: WGS84
 Soil Map Unit Name: Dassel mucky loam NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	_____ Dominance test is >50%	
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>N</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

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

SOIL

Sampling Point: WA002B

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**		
0-16	10YR 2/1	100					Silt loam	
16-18	10YR 2/1	100					Clay loam	
18-21	2.5Y 5/2	100					Sandy clay	
21-29	2.5Y 5/2	90	10YR 4/6	10	C	PL/M	Sand	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u> N </u>
---	--

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
--	--	---	--	---	--

Field Observations: Surface water present? Yes _____ No <u> X </u> Depth (inches): _____ Water table present? Yes _____ No <u> X </u> Depth (inches): _____ Saturation present? Yes <u> X </u> No _____ Depth (inches): <u> 21 </u> (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
--	--

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA002 overview looking southwest.

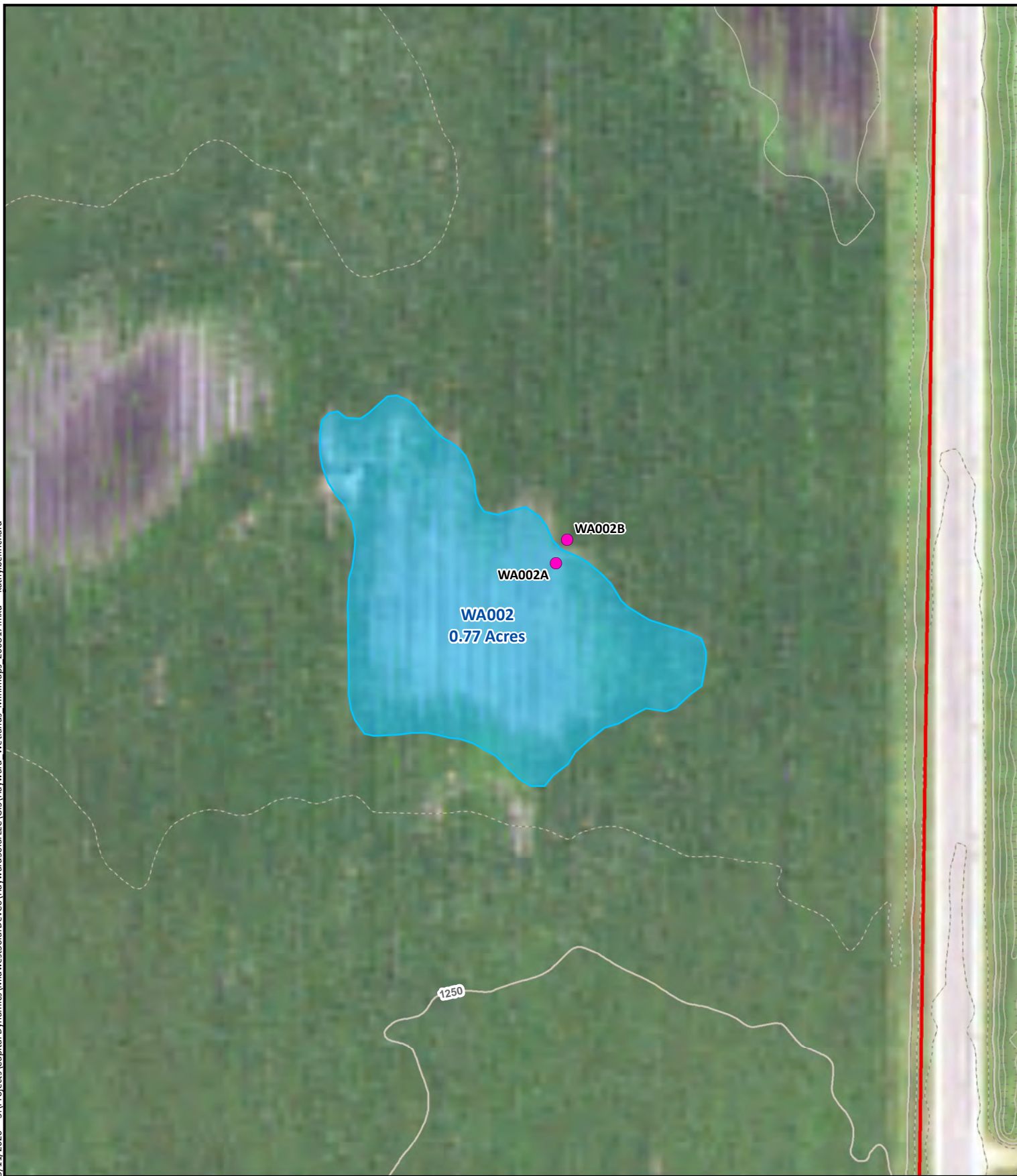


Wetland Sample Point WA002A.

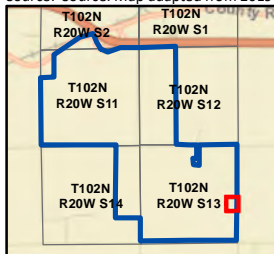


Non-wetland sample point WA002B.

9/11/2020 S:\Projects\Capital Dynamics\MidwestSolarDevCo\HaywardSolarLLC\GIS\Hayward - Wetlands - Minimap_200817.mxd kathy.bellrichard



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000

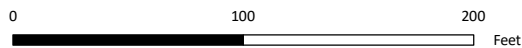


Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA002
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA003

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA003A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 10.67" Long: -93° 10' 15.49" Datum: WGS84
 Soil Map Unit Name: Spicer silty clay loam NWI Classification: PEM1Af

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
<u>0</u> = Total Cover				Prevalence Index Worksheet	
Sapling/Shrub stratum (Plot size: _____)				Total % Cover of:	
1 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
2 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
3 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
5 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
<u>0</u> = Total Cover				Column totals <u>0</u> (A) <u>0</u> (B)	
Herb stratum (Plot size: _____)				Prevalence Index = B/A = _____	
1 _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
2 _____	_____	_____	_____	____ Rapid test for hydrophytic vegetation	
3 _____	_____	_____	_____	____ Dominance test is >50%	
4 _____	_____	_____	_____	____ Prevalence index is ≤3.0*	
5 _____	_____	_____	_____	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
6 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* <u>X</u> (explain)	
7 _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
8 _____	_____	_____	_____	Hydrophytic vegetation present? <u>Y</u>	
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
<u>0</u> = Total Cover					
Woody vine stratum (Plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)
 barnyard grass and ragweed

SOIL

Sampling Point: WA003A

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					Silt loam	
18-26	10YR 2/1	100					Silty clay	
26-34	5Y 5/2	97	10YR 4/6	3	C	PL	Silty clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u>Y</u>
Remarks: _____	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)			

Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
--	--

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA003B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None
 Slope (%): 1 Lat: 43° 38' 10.92" Long: -93° 10' 15.48" Datum: WGS84
 Soil Map Unit Name: Spicer silty clay loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland?	<u>N</u>
Hydric soil present?	<u>Y</u>		
Indicators of wetland hydrology present?	<u>N</u>		
If yes, optional wetland site ID: _____			

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1					Number of Dominant Species that are OBL, FACW, or FAC:	<u>0</u> (A)
2					Total Number of Dominant Species Across all Strata:	<u>0</u> (B)
3					Percent of Dominant Species that are OBL, FACW, or FAC:	<u>0.00%</u> (A/B)
4						
5						
		<u>0</u>	= Total Cover			
Sapling/Shrub stratum	(Plot size: _____)				Prevalence Index Worksheet	
1					Total % Cover of:	
2					OBL species	<u>0</u> x 1 = <u>0</u>
3					FACW species	<u>0</u> x 2 = <u>0</u>
4					FAC species	<u>0</u> x 3 = <u>0</u>
5					FACU species	<u>0</u> x 4 = <u>0</u>
		<u>0</u>	= Total Cover		UPL species	<u>0</u> x 5 = <u>0</u>
					Column totals	<u>0</u> (A) <u>0</u> (B)
					Prevalence Index = B/A =	_____
Herb stratum	(Plot size: _____)				Hydrophytic Vegetation Indicators:	
1					_____ Rapid test for hydrophytic vegetation	
2					_____ Dominance test is >50%	
3					_____ Prevalence index is ≤3.0*	
4					_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5					_____ Problematic hydrophytic vegetation* (explain)	
6						
7						
8						
9						
10						
		<u>0</u>	= Total Cover		*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
Woody vine stratum	(Plot size: _____)				Hydrophytic vegetation present?	
1					<u>N</u>	
2						
		<u>0</u>	= Total Cover			

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

SOIL

Sampling Point: WA003B

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					Silt loam	
14-19	2.5Y 3/1	99	10YR 4/6	1	C	PL	Silty clay	
19-35	5Y 5/2	95	10YR 4/6	5	C	PL	Clay	

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

Hydric Soil Indicators:

- Histisol (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? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (minimum of two required)

- 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)

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

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation present? Yes No Depth (inches): _____
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



WA003 overview looking south.



Wetland Sample Point WA003A.

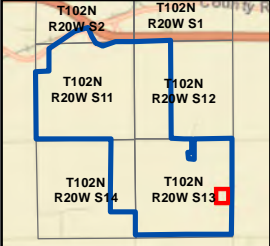


Non-wetland sample point WA003B.

9/11/2020 S:\Projects\Capital Dynamics\MidwestSolarDevCo\HaywardSolarLLC\GIS\Hayward_Wetlands_Minimaps_200817.mxd kathy.bellrichard



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000

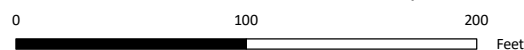


Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA003
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA006

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA006A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 0.61" Long: -93° 10' 45.04" Datum: WGS84
 Soil Map Unit Name: Okoboji silty clay loam NWI Classification: PEM1Af

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland?	<u>Y</u>
Hydric soil present?	<u>Y</u>		
Indicators of wetland hydrology present?	<u>Y</u>		

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>0</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>0</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				
1					
2					
		<u>0</u>	= Total Cover		

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

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)
 corn stubble, barnyard grass

SOIL

Sampling Point: WA006A

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**		
0-20	10YR 2/1	100					Clay loam	
20-24	2.5Y 3/1	99	10YR 4/6	1	C	PL	Clay	
24-34	5Y 5/2	75	10YR 4/6	25	C	M	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA006B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave
 Slope (%): 3 Lat: 43° 38' 0.90" Long: -93° 10' 45.10" Datum: WGS84
 Soil Map Unit Name: okoboj silty clay loam NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	_____ Dominance test is >50%	
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>N</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

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

SOIL

Sampling Point: WA006B

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**		
0-16	16YR 2/1	100					Silty clay	
16-21	2.5Y 3/1	98	10YR 4/6	2	C	PL	Clay	
21-28	5Y 5/2	97	10YR 4/6	3	C	PL	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA006 overview looking south.

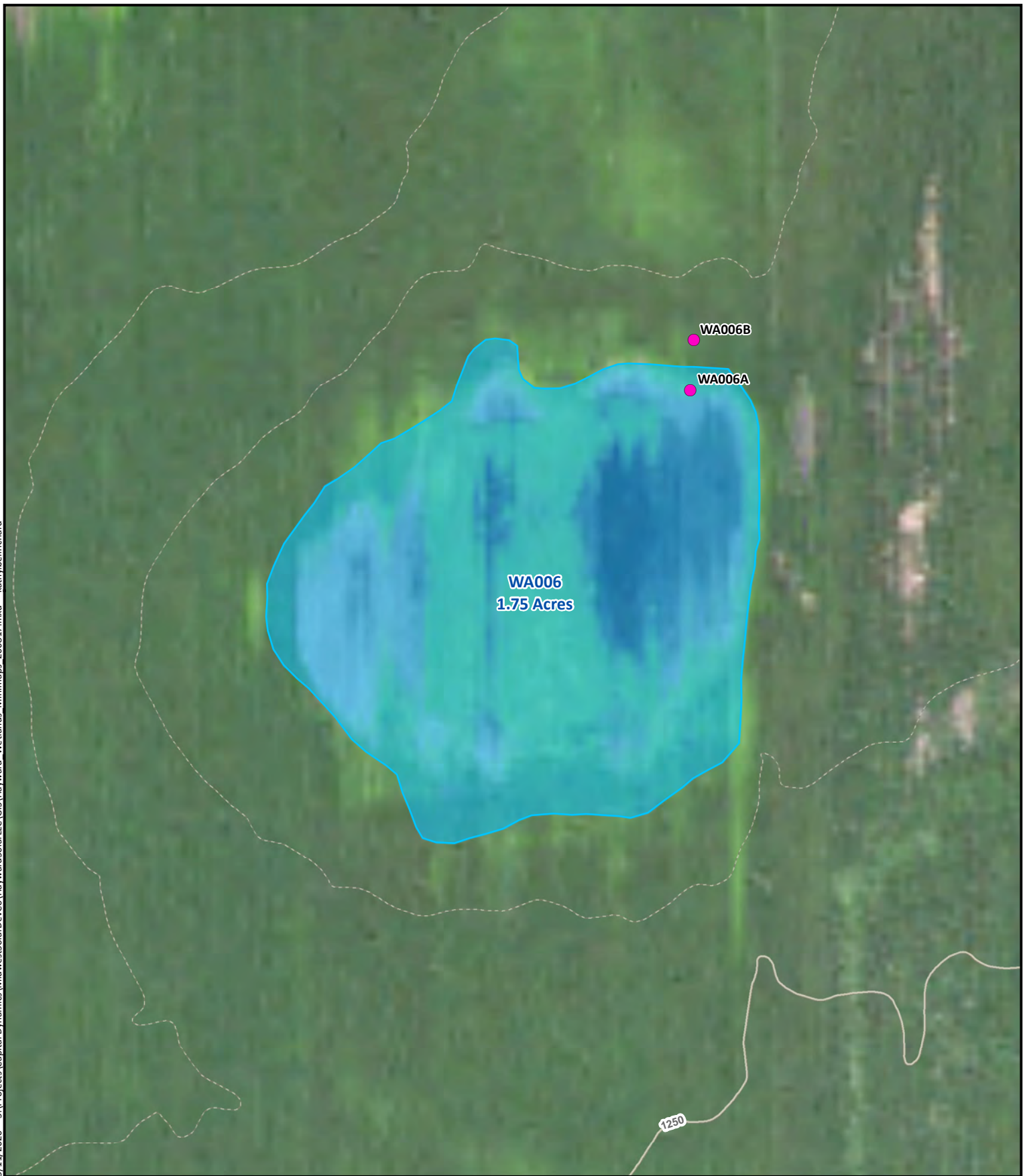


Wetland Sample Point WA006A.

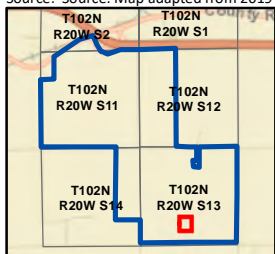


Non-wetland sample point WA006B.

9/11/2020 S:\Projects\Capital Dynamics\MidwestSolarDevCo\HaywardSolarLLC\GIS\Hayward_Wetlands_Minimaps_200817.mxd kathy.bellrichard



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000

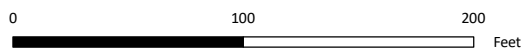


Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA006
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA007

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA007A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 2.78" Long: -93° 10' 50.71" Datum: WGS84
 Soil Map Unit Name: Klossner muck NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	Dominance test is >50%	
3 _____	_____	_____	_____	Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	Problematic hydrophytic vegetation* <u>X</u> (explain)	
6 _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

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

SOIL

Sampling Point: WA007A

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**		
0-30	10YR 2/1	100					silty clay	
30-32	2.5Y 3/1	100					clay	
32-40	5Y 5/2	65	10YR 4/6	35	C	M	sandy clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>			<u>Secondary Indicators (minimum of two required)</u>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)				
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
<input type="checkbox"/> Water-Stained Leaves (B9)					

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>32</u> Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>32</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/27/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA007B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43° 38' 2.65" Long: -93° 10' 00.00" Datum: WGS84
 Soil Map Unit Name: Klossner muck NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	_____ Dominance test is >50%	
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>N</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			

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

SOIL

Sampling Point: WA007B

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**		
0-19	10YR 2/1	100					Silty clay	
19-28	2.5Y 3/1	97	10YR 4/6	3	C	PL	Clay	
28-38	2.5Y 3/2	99	10YR 4/6	1	C	PL	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> N </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Weak soil cracking.

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA007 overview looking northwest.



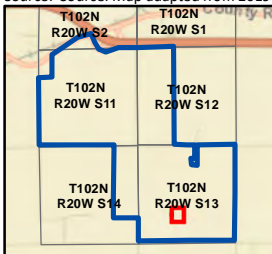
Wetland Sample Point WA007A.



Non-wetland sample point WA007B.



Source: Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000

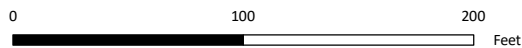


Wetland Survey

- Sample Point
- ⬭ Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA007
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA013

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA013A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102 R20W S13
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave
 Slope (%): 10 Lat: 43° 38' 26.96" Long: -93° 11' 2.26" Datum: WGS84
 Soil Map Unit Name: Wacousta mucky silt loam NWI Classification: R5UBFx

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>95</u> x 2 = <u>190</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
0 = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>95</u> (A) <u>190</u> (B)
				Prevalence Index = B/A = <u>2.00</u>
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphogical 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
1 <u>Phalaris arundinacea</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2 <u>Urtica dioica</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
95 = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
0 = Total Cover				

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

SOIL

Sampling Point: WA013A

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					Mucky loam	
12-16	2.5Y 5/2	97	10YR 4/6	3	C	PL	Clay	
16-20	2.5Y 5/2	97	10YR 4/6	3	C	PL	Sand	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>12</u> Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 small channel of flowing water adjacent, likely a result of recent rain

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA013B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102 R20W S13
 Landform (hillslope, terrace, etc.): Sholder Local relief (concave, convex, none): Convex
 Slope (%): 5 Lat: 43° 38' 26.99" Long: -93° 11' 2.40" Datum: WGS84
 Soil Map Unit Name: Wascousta mucky silt loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>90</u> x 4 = <u>360</u>
	<u>0</u> = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>90</u> (A) <u>360</u> (B)
				Prevalence Index = B/A = <u>4.00</u>
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphogical 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
1 <u>Bromus inermis</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	<u>90</u> = Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
	<u>0</u> = Total Cover			

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

SOIL

Sampling Point: WA013B

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**		
0-23	10YR 2/1	100					Silt loam	
23-34	5Y 4/1	99	10YR 4/6	1	C	PL	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u> N </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA013 overview looking north.

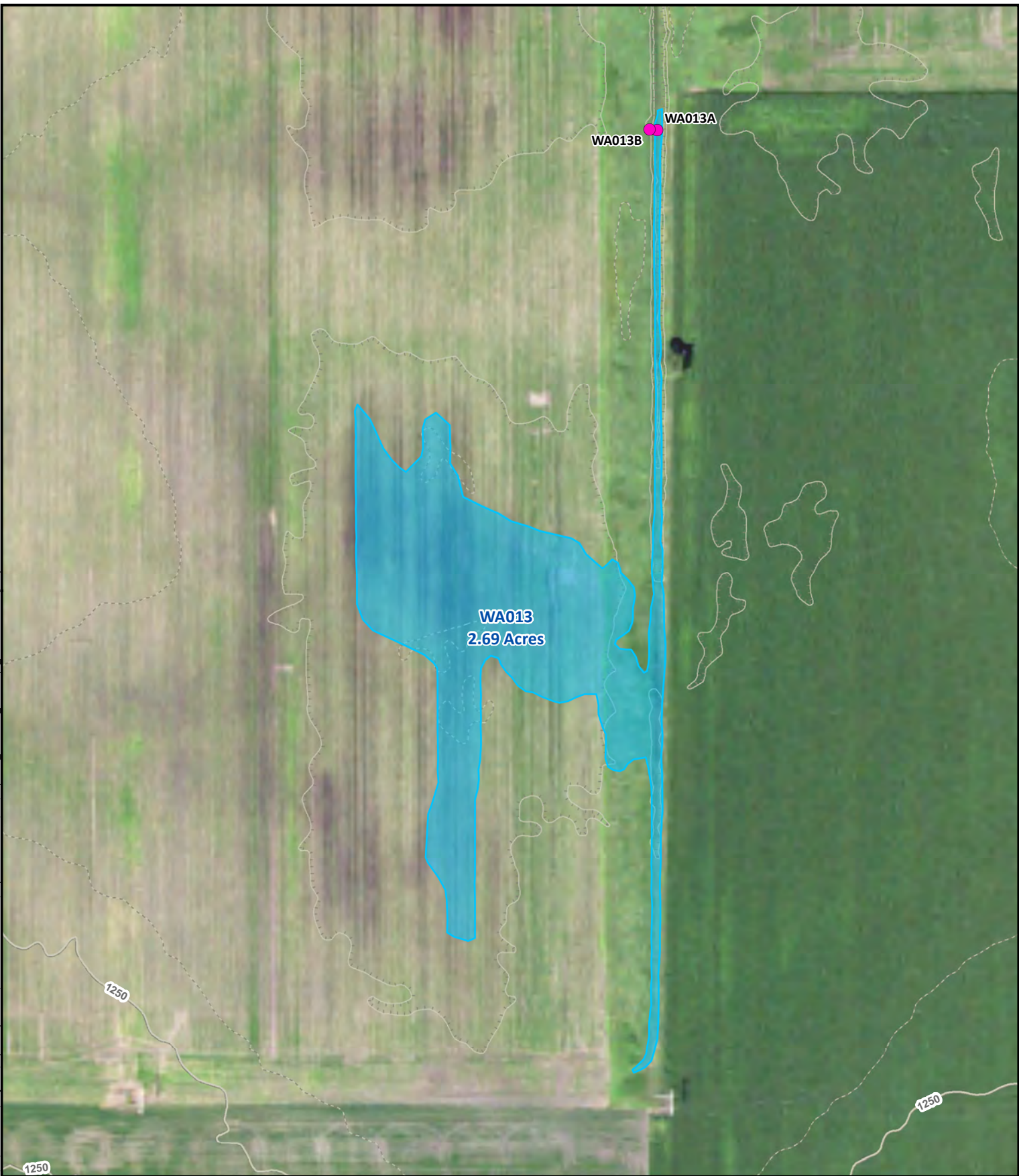


Wetland Sample Point WA013A.

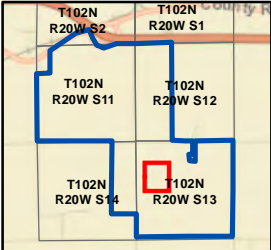


Non-wetland sample point WA013B.

9/11/2020 S:\Projects\Captial Dynamics\Midwest\SolarDevCo\HaywardSolarLLC\GIS\Hayward_Wetlands_Minimaps_200817.mxd kathy.bellrichard



Source: Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:2,000

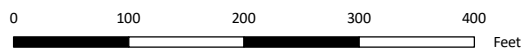


Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA013
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA015

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA015A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave
 Slope (%): 2 Lat: 43° 38' 27.64" Long: -93° 10' 9.15" Datum: WGS84
 Soil Map Unit Name: Klossner muck NWI Classification: R5UBFx

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Sapling/Shrub stratum	(Plot size: _____)			
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Herb stratum	(Plot size: _____)			
1	<u>Phalaris arundinacea</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>
2				
3				
4				
5				
6				
7				
8				
9				
10				
		<u>90</u>	= Total Cover	
Woody vine stratum	(Plot size: _____)			
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet			
Number of Dominant Species that are OBL, FACW, or FAC:	<u>1</u>	(A)	
Total Number of Dominant Species Across all Strata:	<u>1</u>	(B)	
Percent of Dominant Species that are OBL, FACW, or FAC:	<u>100.00%</u>	(A/B)	

Prevalence Index Worksheet			
Total % Cover of:			
OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>90</u>	x 2 =	<u>180</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>90</u>	(A)	<u>180</u> (B)
Prevalence Index = B/A =	<u>2.00</u>		

Hydrophytic Vegetation Indicators:	
<input type="checkbox"/>	Rapid test for hydrophytic vegetation
<input checked="" type="checkbox"/>	Dominance test is >50%
<input checked="" type="checkbox"/>	Prevalence index is ≤3.0*
<input type="checkbox"/>	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
<input type="checkbox"/>	Problematic hydrophytic vegetation* (explain)

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

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

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA015B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex
 Slope (%): 20 Lat: 43° 38' 27.63" Long: -93° 10' 9.02" Datum: WGS84
 Soil Map Unit Name: Klossner muck NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>90</u> x 4 = <u>360</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>90</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>4.00</u>
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)				
1	<u>Bromus inermis</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>	
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>90</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				
1					
2					
		<u>0</u>	= Total Cover		

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

SOIL

Sampling Point: WA015B

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

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input checked="" type="checkbox"/> Other (explain in remarks)</p> <p> </p> <p>*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>
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<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> Y </u></p>
--	--

Remarks:
Hydric soils assumed, did not dig due to utilities.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			

<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>(includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> N </u></p>
--	--

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA015 overview looking north.



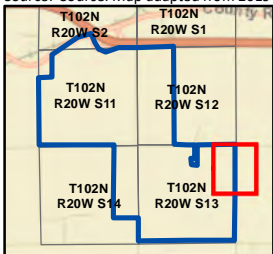
Wetland Sample Point WA015A.



Non-wetland sample point WA015B.



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:3,500



Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression

Wetland ID: WA015
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA016

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA016A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): None
 Slope (%): 2 Lat: 43° 37' 50.74" Long: -93° 10' 9.33" Datum: WGS84
 Soil Map Unit Name: Mayer loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>90</u> (A) <u>180</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)				
1	<i>Phalaris arundinacea</i>	90	Y	FACW	
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>90</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				
1					
2					
		<u>0</u>	= Total Cover		

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? Y

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

SOIL

Sampling Point: WA016A

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: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input checked="" type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:
Hydric soils assumed, did not dig due to utilities

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> Y </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Some surface water present in ditch. Due to utility conflicts, did not dig hole.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA016B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex
 Slope (%): 20 Lat: 43° 37' 50.73" Long: -93° 10' 9.23" Datum: WGS84
 Soil Map Unit Name: Mayer loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland?	<u>N</u>
Hydric soil present?	<u>Y</u>		
Indicators of wetland hydrology present?	<u>N</u>		

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>90</u> x 4 = <u>360</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>90</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>4.00</u>
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)				
1	<u>Bromus inermis</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>	
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>90</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				
1					
2					
		<u>0</u>	= Total Cover		

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

SOIL

Sampling Point: WA016B

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

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input checked="" type="checkbox"/> Other (explain in remarks)</p> <p> *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>
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<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> Y </u></p>
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Remarks:
Hydric soils assumed, did not dig due to utilities.

HYDROLOGY

Wetland Hydrology Indicators:

<p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>(includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> N </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA016 overview looking northeast.



Wetland Sample Point WA016A.

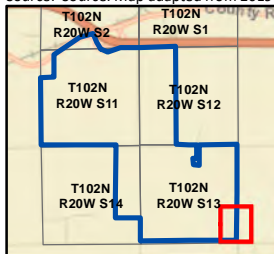


Non-wetland sample point WA016B.

S:\Projects\Capital Dynamics\MidwestSolarDevCo\HaywardSolarLLC\GIS\Hayward_Wetlands_Minimaps_200817.mxd kathy.bellrichard



Source: Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:2,500



Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression

Wetland ID: WA016
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA019

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA019A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Convex
 Slope (%): 1 Lat: 43° 37' 51.87" Long: -93° 10' 21.99" Datum: WGS84
 Soil Map Unit Name: Glencoe clay loam NWI Classification: PEM1Af

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland?	<u>Y</u>
Hydric soil present?	<u>Y</u>		
Indicators of wetland hydrology present?	<u>Y</u>		

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Sapling/Shrub stratum	(Plot size: _____)			
1				
2				
3				
4				
5				
		<u>0</u>	= Total Cover	
Herb stratum	(Plot size: _____)			
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		<u>0</u>	= Total Cover	
Woody vine stratum	(Plot size: _____)			
1				
2				
		<u>0</u>	= Total Cover	

Dominance Test Worksheet	
Number of Dominant Species that are OBL, FACW, or FAC:	<u>0</u> (A)
Total Number of Dominant Species Across all Strata:	<u>0</u> (B)
Percent of Dominant Species that are OBL, FACW, or FAC:	<u>0.00%</u> (A/B)

Prevalence Index Worksheet	
Total % Cover of:	
OBL species	<u>0</u> x 1 = <u>0</u>
FACW species	<u>0</u> x 2 = <u>0</u>
FAC species	<u>0</u> x 3 = <u>0</u>
FACU species	<u>0</u> x 4 = <u>0</u>
UPL species	<u>0</u> x 5 = <u>0</u>
Column totals	<u>0</u> (A) <u>0</u> (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* <u>X</u> (explain)	
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	

Hydrophytic vegetation present?	<u>Y</u>
--	----------

Remarks: (Include photo numbers here or on a separate sheet)
 cornsubble, ragweed, and barn grass

SOIL

Sampling Point: WA019A

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**		
0-16	10YR 2/1	100					Silt loam	
16-19	10YR 2/1	100					Clay	
19-23	2.5Y 3/1	95	10YR 4/6	5	C	PL	Clay	
23-28	5Y 5/2	90	10YR 4/6	10	C	PL	Clay	
28-36	5Y 5/2	85	10YR 4/6	15	C	PL/M	Sandy clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u>Y</u>
---	-------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/28/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA019B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex
 Slope (%): 3 Lat: 43° 37' 51.97" Long: -93° 10' 22.19" Datum: WGS84
 Soil Map Unit Name: Glencoe clay loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
<u>0</u> = Total Cover				Prevalence Index Worksheet	
Sapling/Shrub stratum (Plot size: _____)				Total % Cover of:	
1 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
2 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
3 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
5 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
<u>0</u> = Total Cover				Column totals <u>0</u> (A) <u>0</u> (B)	
Herb stratum (Plot size: _____)				Prevalence Index = B/A = _____	
1 _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
2 _____	_____	_____	_____	____ Rapid test for hydrophytic vegetation	
3 _____	_____	_____	_____	____ Dominance test is >50%	
4 _____	_____	_____	_____	____ Prevalence index is ≤3.0*	
5 _____	_____	_____	_____	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
6 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)	
7 _____	_____	_____	_____	____	
8 _____	_____	_____	_____	____	
9 _____	_____	_____	_____	____	
10 _____	_____	_____	_____	____	
<u>0</u> = Total Cover				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
Woody vine stratum (Plot size: _____)				Hydrophytic vegetation present? <u>N</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>0</u> = Total Cover					

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

SOIL

Sampling Point: WA019B

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**		
0-20	10YR 2/1	100					Silt loam	
20-26	10YR 3/1	100					Clay	
26-32	2.5Y 4/2	85	10YR 5/6	15	C	PL	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
--	--	--	--	--	--

Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA019 overview looking southeast.

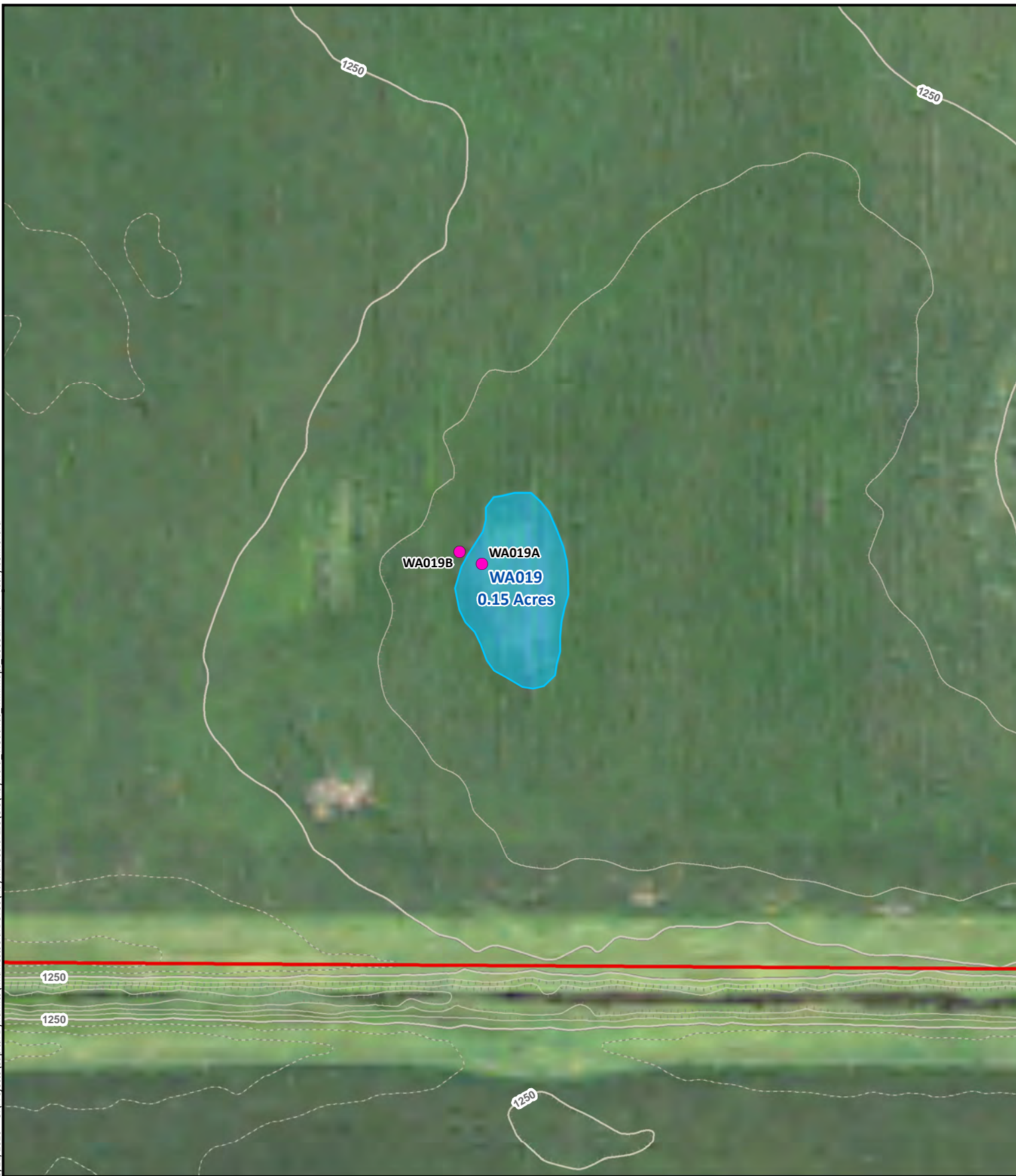


Wetland Sample Point WA019A.

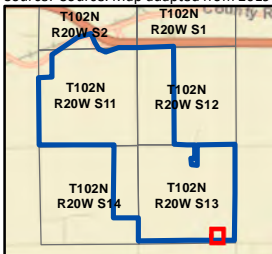


Non-wetland sample point WA019B.

9/11/2020 S:\Projects\Captial Dynamics\MidwestSolarDevCo\HaywardSolarLLC\GIS\Hayward_Wetlands_Minimaps_200817.mxd kathy.bellrichard



Source: Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000



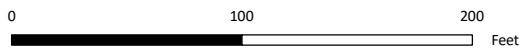
Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression

Wetland ID: WA019
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA021

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/29/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA021A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 2 Lat: 43° 37' 56.12" Long: -93° 10' 14.67" Datum: WGS84
 Soil Map Unit Name: Mayer loam NWI Classification: PEM1Af

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland?	<u>Y</u>
Hydric soil present?	<u>Y</u>		If yes, optional wetland site ID: _____
Indicators of wetland hydrology present?	<u>Y</u>		

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>0</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)				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* <u>X</u> (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>0</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				
1					
2					
		<u>0</u>	= Total Cover		

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

SOIL

Sampling Point: WA021A

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**		
0-19	10YR 2/1	100					Clay loam	
19-23	2.5Y 3/1	99	10YR 3/4	1	C	PL	Clay	
23-35	2.5Y 5/2	95	10YR 4/6	5	C	PL	Clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
--	--

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Weak surface soil cracks; corn from the previous year appears to have some weak stress.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/29/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA021B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Toe slope Local relief (concave, convex, none): None
 Slope (%): 1 Lat: 43° 37' 55.86" Long: -93° 10' 14.67" Datum: WGS84
 Soil Map Unit Name: mayer loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Prevalence Index Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
0 = Total Cover				Column totals <u>0</u> (A) <u>0</u> (B)
				Prevalence Index = B/A = _____
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	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
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
0 = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Hydrophytic vegetation present? <u>N</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
0 = Total Cover				

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

SOIL

Sampling Point: WA021B

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**		
0-16	10YR 2/1	100					Clay	
16-21	2.5Y 3/1	99	10YR 3/4	1	C	PL	Clay	
21-28	2.5Y 3/1	85	2.5Y 5/2	15	D	M	Clay	
28-40	2.5Y 5/2	98	10YR 4/6	2	C	PL	Sandy clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>28</u> Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>28</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation Photographs, Hayward Solar, Freeborn County, Minnesota



WA021 overview looking east.



Wetland Sample Point WA021A.

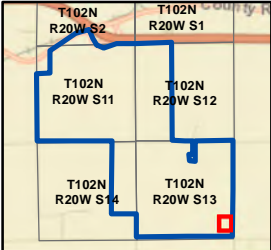


Non-wetland sample point WA021B.

9/11/2020 S:\Projects\Captial Dynamics\MidwestSolarDevCo\HaywardSolarLLC\GIS\Hayward_Wetlands_Minimaps_200817.mxd kathy.bellrichard



Source: Map adapted from 2019 NAIP; MN DNR Elevation, Tetra Tech wetlands. Scale: 1:1,000

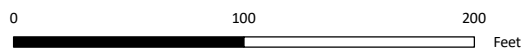


Wetland Survey

- Sample Point
- Delineated Wetland
- Project Area

2-foot Elevation Contour

- Index
- Index Depression
- Intermediate
- Intermediate Depression



Wetland ID: WA021
Wetland Delineation
Hayward Solar
Freeborn County, Minnesota



WA025

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/29/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA025A
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave
 Slope (%): 1 Lat: 43° 37' 49.72" Long: -93° 10' 41.92" Datum: WGS84
 Soil Map Unit Name: Okoboji silty clay loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	If yes, optional wetland site ID: _____
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>0</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
2 _____	_____	_____	_____		
3 _____	_____	_____	_____		
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
<u>0</u> = Total Cover				Prevalence Index Worksheet	
Sapling/Shrub stratum (Plot size: _____)					
1 _____	_____	_____	_____		Total % Cover of:
2 _____	_____	_____	_____		OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____		FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
<u>0</u> = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>	
Herb stratum (Plot size: _____)				Column totals <u>0</u> (A) <u>0</u> (B)	
1 _____	_____	_____	_____	Prevalence Index = B/A = _____	
2 _____	_____	_____	_____	Hydrophytic Vegetation Indicators:	
3 _____	_____	_____	_____		_____ Rapid test for hydrophytic vegetation
4 _____	_____	_____	_____		_____ Dominance test is >50%
5 _____	_____	_____	_____		_____ Prevalence index is ≤3.0*
6 _____	_____	_____	_____		_____ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
7 _____	_____	_____	_____		_____ Problematic hydrophytic vegetation*
8 _____	_____	_____	_____		<u>X</u> (explain)
9 _____	_____	_____	_____		*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
10 _____	_____	_____	_____		Hydrophytic vegetation present? <u>Y</u>
Woody vine stratum (Plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>0</u> = Total Cover					

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

SOIL

Sampling Point: WA025A

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					Silt loam	
18-23	2.5Y 4/1	95	10YR 4/6	5	C	PL	Sandy clay	
23-28	5Y 5/2	95	10YR 4/6	5	C	PL	Sandy clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Hayward Solar City/County: Freeborn County Sampling Date: 4/29/2020
 Applicant/Owner: Hayward Solar LLC State: Minnesota Sampling Point: WA025B
 Investigator(s): Apryl Jennrich Section, Township, Range: T102N R20W S13
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none
 Slope (%): 3 Lat: 43° 37' 49.54" Long: -93° 10' 41.96" Datum: WGS84
 Soil Map Unit Name: Okoboji silty clay loam NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (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? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Staus	Dominance Test Worksheet
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				Prevalence Index Worksheet
Sapling/Shrub stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb stratum (Plot size: _____)				
1 <u>Bromus inermis</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>60</u> x 4 = <u>240</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>70</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>3.71</u>
2 <u>Phalaris arundinacea</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>70</u> = Total Cover				
Woody vine stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 _____ Dominance test is >50%
 _____ Prevalence index is ≤3.0*
 _____ Morphogical 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? N

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

SOIL

Sampling Point: WA025B

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**		
0-19	10YR 2/1	100					Silt loam	
19-22	2.5Y 2.5/1	90	7.5YR 4/4	10	C	PL	Clay	
22-34	2.5Y 2.5/1	100					Clay	
34-37	5Y 5/2	90	10YR 4/6	10	C	PL	Clay	
37-39	2.5Y 4/1	100					Sandy clay	

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

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> 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? <u> N </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: