Wetland Delineation Report
Farrell Road and Oak Grove Road
City of Kaukauna
Outagamie County, WI

June 22nd 2023 Site Visit

Project # 1-0186-020

Prepared for:
NAI Pfefferle
200 E. Washington Street
Suite 2A
Kaukauna, WI 54911

Prepared by:
Martenson & Eisele, Inc.
1377 Midway Road
Menasha, WI 54952

Table of Contents

Introduction

Martenson & Eisele, Inc. (M&E) performed the wetland delineation on the 4.26 - acre area of investigation (AOI). The AOI, is located west of Farrell Road and south of Oak Grove Road. The area is currently a fallow site with fill area and agricultural weeds dominating the upland area and wetland vegetation dominating the depressional area and adjacent to the waterway which was identified in the wetland area report. The lot area identified has the potential for site development into commercial/industrial area if the wetland area can be avoided. The parcel #322112300 (2-1123) is located in the City of Kaukauna, Outagamie County Wisconsin. The purpose of this delineation is to identify wetland resources located within the area of investigation, to ensure the upland area is adequate for the development of the property, to show the limits of the upland area to avoid filling of any wetlands and to meet Outagamie County or the City of Kaukauna wetland setbacks as identified on the AOI.

The total project area is 4.26 acres (Appendix B) as shown with the AOI boundary from the Outagamie County GIS parcel map boundary. The property is generally located west of Farrell Road and south of Oak Grove Road, in the City of Kaukauna. The existing land use is currently fallow or idle land with agricultural land to the north and east, commercial land to the east and a stormwater runoff pond and marshy land to the south of the parcel. The AOI currently has a wetland area located along the west in the depressional area and along the drainageway to the south which is associated with the waterway. The wetland area is considered a lower quality wetland due to the amount of Common Reed (Phragmites australis) and Reed Canary Grass (Phalaris arundinacea) mixed throughout the wetland area due to findings of dominant herbaceous plant species which are considered invasive. There are areas within the wetland area which have cattails growing where wetter conditions exist and water can be found. The majority of the AOI has an upland area with steep slopes leading to the wetland area due to the site appearing to be filled and gently sloping land throughout the uplands as identified on the property due to the findings of hydrology and hydric soil conditions. Vegetation and soils are considered normal circumstances in the upland soil borings and normal circumstances in the wetland area where the soil borings were conducted due to the amount of time which has passed since the site filling has occurred and the site has been left idle for many years. Soil mapping unit for the AOI are: KhC2 which is Kewaunee silt loam which is associated with the upland area and McA which is Manawa silty clay loam which is associated with the wetland area. All soil boring sites were placed carefully to achieve the best representative soil profile description and representative vegetation due to the site conditions, vegetation and potential impacts from human induced practices from past history. Soil descriptions were used to aid in identifying potential wetland soils based on the NRCS soil map and Wisconsin DNR wetland map. With existing vegetative and soil analysis the wetland identified is considered to be a wetland community meeting 1987 U.S. Corps of Engineers Wetland Delineation Manual criteria. Information on site conditions can be found in the Site Description starting on page 4.

Wally Sedlar, WDNR Assured Wetland Delineator and Environmental Program Manager with Martenson & Eisele, Inc., is the lead delineator and report author for this project. Field evaluations were able to be completed due to field conditions and wetland and upland vegetation within the growing season and identifiable. Wetland soil borings had vegetation noted with normal conditions due to a grassy wet area and no soil disturbance conducted and the upland conditions being normal conditions due to amount of time in which disturbed conditions existed and the site was an agricultural cropped area prior to site disturbance back to the 1938 cropping history. During the field investigation soil borings were completed

on June 22nd, 2023, the weather conditions at the site were sunny and +/- 83°F. At the time of the site investigation, rainfall amounts were drier than normal for the month of June, and rainfall amounts were drier than normal for the past three months leading up to the on-site investigation. Based upon results of the wetland delineation, the site does contain one wetland area as identified. Wetland Area = 1.317 acres (57,387 square feet). Review of the vegetative and soil conditions identified as normal conditions due to the area having undisturbed conditions in the wetland area and the upland area as well.

Delineation Methodology

The evaluation criteria used were based on the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* and the *Basic Guide to Wisconsin's Wetlands and their Boundaries* (Wisconsin Department of Administration Coastal Management Program).

The U. S. Army Corps of Engineers and U.S. Environmental Protection Agency define a wetland as:

> "*Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

Wetlands are defined by the State Legislature in Wisconsin. According to this definition, a wetland is:

> *"An area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic (water-loving) vegetation and which has soils indicative of wet conditions."*

Methodology used to determine the wetland boundary followed those described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* and the *Basic Guide to Wisconsin's Wetlands and their Boundaries* (Wisconsin Department of Administration). More specifically, soil data sheets were utilized with points taken along transects established between different habitat types to determine whether areas had hydric soil, hydrophytic vegetation, and wetland hydrology. Soil boring transect was arranged perpendicular to the wetland boundary or randomly as needed. Herbaceous vegetation was evaluated from the location of the soil plot at a 5-foot radius or comparable square footage calculation, Sapling/Shrubs at 15-foot radius or comparable square footage calculation, and trees and vines at a 30-foot radius. Soils at each plot location were evaluated based on the USDA Natural Resource Conservation Services' *Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.2, 2018.* Borings that had indication of potential groundwater levels were left open for a period of no less than 30 minutes to allow for recharge and determination of water levels. Using this data, M&E staff determined where the wetland boundary was located. The flagged wetland boundary and transects were located using survey grade equipment and the wetland locations and sample plots were mapped with County coordinates. The Northcentral/Northeast Region Supplement Wetland Determination Data Forms are displayed in Appendix L.

Prior to conducting the site visit, M&E staff conducted research to aide in identifying potential wetland communities that may exist on-site, and reviewed climate and hydrologic data to help explain conclusions that were made during the field investigation. This research involved examining the County Topography Map from Outagamie County GIS, the WDNR Digital Wetland Inventory Map, U.S. Fish and Wildlife Service National Wetlands Inventory Map, historic aerial photographs, the FEMA Flood Insurance Rate Map, the "Custom Soil Resource Report for Outagamie County", the National Weather Service Outagamie County Climate Report, USGS WaterWatch, Appleton, WI WETS Station table, and the US Drought Monitor. Research mapping can be found in the Appendices at the end of this report. All site extent boundaries identified are approximate.

Delineation Results

Site Description

The project area is 4.26 acres (Appendix B) and is surrounded primarily by agricultural land to the north and east and commercial land to the west with a stormwater runoff pond and natural area/fallow land to the south. The AOI consists of approximately 69 percent uplands which was open area with a few shrubs and small trees scattered throughout and 31 percent of the parcel which consist of Common Reed and Reed Canary Grass dominated wetland area with a waterway along the wetland, based on the on-site investigation. Wetland Area = 1.317 acres (57,387 square feet) is associated with the lower area which has a high groundwater table and surface water drainage. Air Photo Review for the site from the historical photos was completed due to the area being a cropped field many years ago and the area has been disturbed by human influences. The desire of the landowner for the AOI is to identify any area within the AOI for future development of the site for commercial/industrial placement which will need to meet set-back requirements located on the upland area. The AOI is considered to have climate and hydrology conditions as drier than normal for this time of year at the site for antecedent precipitation. Surface water runoff and high ground water table provides the environment for hydrologic position within the landscape which created the environment for conditions to be labeled as a wetland area. Vegetation is considered normal at all the soil borings. Hydrophytic vegetation is not present in the upland areas where the soil borings were taken. Hydrophytic vegetation was noted at the soil borings in the wetland due to it being in close proximity to the lowland area and high ground water conditions. Vegetation, soils and hydrology conditions are documented on the wetland determination data forms for the Northcentral and Northeast Region – Version 2. Data was collected and limited to the area of investigation.

The historical site photo evaluation aerial slide review was performed because the area was disturbed by agricultural activity and the majority of the AOI is considered an upland area with the low area having significant patches of phragmites, canary grass and a few cattails. The area was cropland in the 1938 air photo and was considered cropland until around 2005 and has not been cropped for many years. Wetness signature of 100% is the highest percentage of years (15 out of 15 years) identified along the northwest portion of the parcel and 80% in the southwest corner of the parcel, most of the wet years were in recent years and showed significant color tone differences due to wetness.

According to the soil reports, the area of investigation is comprised of a well-drained Kewaunee silt loam (KhC2) and somewhat poorly-drained Manawa silty clay loam (McA).

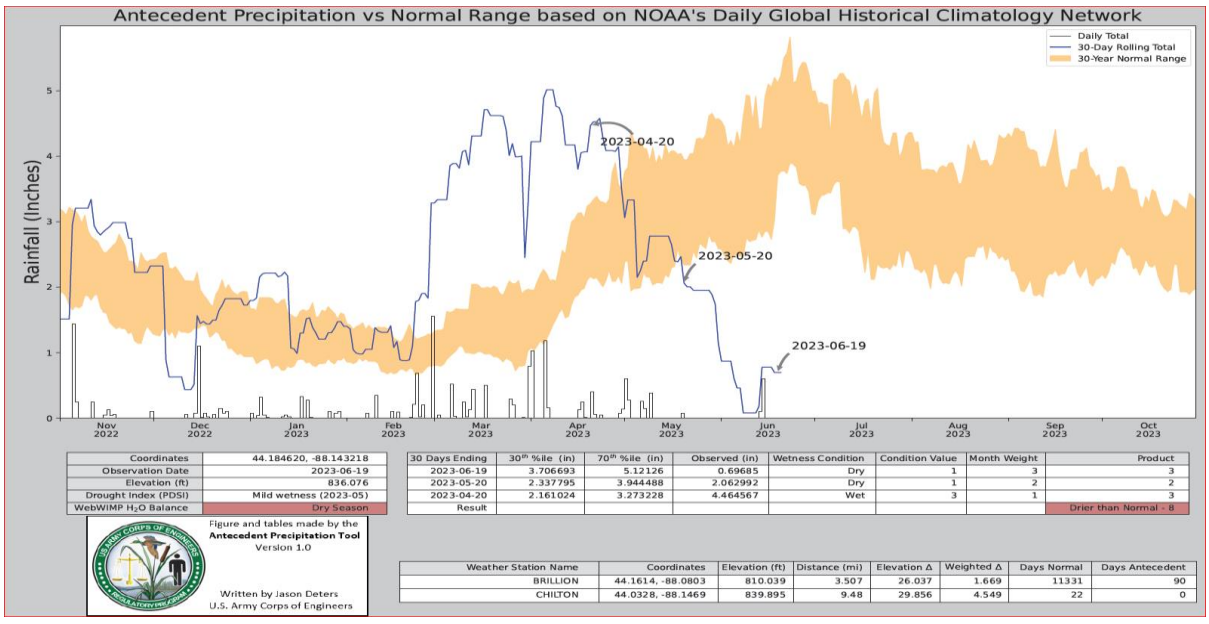
Kewaunee (KhC2) soils for this site are located along the northeast and central portion of the AOI, encompassing about 53% of the property, with slopes ranging from 6 - 12 percent. Depth to water table is more than 80 inches with the capacity of the most limiting layer to transmit water being moderately low to moderately high. The typical soil profile in general is: Ap = 0 - 7 inches (silt loam), 2Bt = 7 - 27 inches (silty clay) and 2Cd = 27 – 79 inches (silty clay loam) as provided from the NRCS Web Soil Survey. Kewaunee soil type is considered to not be a hydric soil.

Manawa (McA) soils for this site are located along the west and southern edge encompassing about 47% of the property, with slopes ranging from 0-3 percent. Depth to water table is about 7-24 inches with the capacity of the most limiting layer to transmit water being moderately low to moderately high. The typical soil profile in general is: Ap = 0 - 9 inches (silt clay loam), Bt = 9 - 35 inches (silty clay) and Cd = 35 - 79 inches (silty clay) as provided from the NRCS Web Soil Survey. Manawa soil type is not considered to be a hydric soil, but contains a minor component of Poygan with a hydric rating.

Additional Information on the soils located at the site can be found in the "Custom Soil Resource Report for Outagamie County," Appendix F – soil report.

The Bordner Survey, Appendix H, was used as a historical reference due to site condition changes made through agricultural cropping practices and development in the area and drainage that has changed the overall characteristics of the landscape. The area is considered to be cleared cropland in the AOI per the 1933-1945 survey.

According to the Appleton, WI Army Corps of Engineers Weather Station, rainfall for the month of June was approximately .7 inches before the site visit, which is currently in the dry range for the month and the prior two months were considered dry and wet. Precipitation had occurred within the last week before the time of the site visit on April 22nd, 2023. The weighted value is considered drier than normal for Direct Antecedent Rainfall using Antecedent Precipitation Tool Version 1.0. The USDA's online "Drought Monitor" listed the drought intensity as None up to June 22nd 2023. The USGS WaterWatch stream flow maps indicated streams in the area were not ranked on June 22nd, 2023.



Coordinates	44.184620, -88.143218
Observation Date	2023-06-19
Elevation (ft)	836.076
Drought Index (PDSI)	Mild wetness (2023-05)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-06-19	3.706693	5.12126	0.69685	Dry	1	3	3
2023-05-20	2.337795	3.944488	2.062992	Dry	1	2	2
2023-04-20	2.161024	3.273228	4.464567	Wet	3	1	3
Result							Drier than Normal - 8

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BRILLION	44.1614, -88.0803	810.039	3.507	26.037	1.669	11331	90
CHILTON	44.0328, -88.1469	839.895	9.48	29.856	4.549	22	0

The NRCS Soil Report (Appendix F) indicates there were mapped hydric soils in the area of investigation and the on-site investigation verified hydric soils. According to the 1-foot Outagamie County Contour Map (Appendix I) the property is mapped with significant relief over the entire AOI. Approximately eight-teen feet of elevation change occurs across the AOI and the relief change is from the northeast of the AOI starting close to Oak Grove Road and slopes southeast to the waterway area along the south parcel line. According to the FEMA Flood Insurance Rate Map (Appendix G), the site is mapped as zone X with the area having minimal flood hazard across the entire parcel.

Site Reconnaissance

During the field investigation, M&E staff determined that the wetland area is associated with the depressional area to the west and the grassy waterway area along the south parcel line with ground water and surface water inputs. The wetland area is associated with the soil mapping unit McA (Manawa silty clay loam) - drainageway throughout the AOI. The wetland area appeared to have developed due to ground water and surface water influences for long enough periods of time to meet the criteria for a wetland due to saturated soil conditions. Refer to Appendix B for the wetland area designation and location map. On-site soils are identified on the wetland determination data forms for the Northcentral and Northeast Region showing rationale for hydric soil classification. The wetland area was identified and mapped as noted with the wetland boundary located within the AOI boundary.

Wetland Area

The wetland area identified is located on Appendix B – surveyed wetland boundary. The wetland identified is: Wetland Area = 1.317 acres (57,387 square feet). The Wisconsin Wetland Inventory Classification for the wetland would be = Emergent/wet meadow narrow leaved persistent wet soil palustrine (E2K) base on the current site conditions. The area has had land disturbance on the parcel since agricultural cropping was being conducted and appears to be fallow for several years. It was an agricultural field in the 1938 air photo. Hydrology was observable in the wetland plots – SB-2, SB-3, SB-6 and SB-8.

Vegetation

Site conditions identified within the wetland area consisted of normal circumstances at the wetland area and normal circumstances at the upland soil borings. Findings of hydrophytic vegetation at the wetland soil boring were noted and in the upland area lack of hydrophytic vegetation was noted due to lack of hydrology and hydric soils. Soil borings had Wetland plant species noted as: Reed canary grass (Phalaris arundinacea), Typha angustifolia (Narrowleaf cattail), Water Hemlock (Cicuta maculate), Bottle brush sedge (Carex retrorsa), Awl fruited sedge (Carex stipita), Common reed (Phragmites australis), Cottonwood (Populus deltoides), Common buckthorn (Rhamnus cathartica), Common horsetail (Equisetum arvense) and Swamp milkweed (Asclepias incarnata). Upland plant species noted were: Kentucky bluegrass (Poa pratensis), Queen Anne's lace (Daucus carota), Canada goldenrod (Solidago canadensis), Common ragweed (Amborsia artemisiifolia), Yellow sweet clover (Melilotus officinalis), Prickly lettuce (Lactuca serriola), Common dandelion (Taraxacum officinale), Field brome (Bromus arvensis), Common milkweed (Asclepias syriaca), Canada thistle (Cirsium arvense), and Bull thistle (Cirsium vulgare).

Soils

Soil within these wetland areas met the Redox Dark Surface (F6) – at soil boring 2, 3, 6 and 8. These soil conditions meet the USDA *Field Indicators of Hydric Soils in the United States, version 8.2*. These soil indicators identified 4 soil boring as having Hydric Soils per the field investigation which supports the wetland classification as identified.

Hydrology

Wetland area appears to have water contributions from the west as associated with the lowland area as well as ground water saturation due to high water table conditions usually early in the spring and during significant rain events and the water table is usually well below the surface (Tiner 1998) within the wetland area during dry times, as noted. The wetland area is a wetland area associated with capillary water movement with wetness for extended periods of time indicating high water level conditions due to saturated subsoil conditions. The sample plots met criteria for a wetland related to: Dry-Season Water Table (C2), Geomorphic Position (D2), Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9) and FAC-Neutral Test (D5). Rain occurred in the past 7 days before the on-site visit.

Uplands

The upland area of the site is higher in elevation than the wetland area associated with the AOI and is mainly elevated due to the rise in elevation along the central and north portion of the parcel adjacent to Oak Grove and Farrell Roads. The elevation changes across the AOI by approximately 18 feet from the high point along the north side of the property and drains to the low point to the southeast in the lowland area. The upland area is mostly open area with a few shrubs/small trees now due to past agricultural activity, but the lower portion is transitioning to a grassy area with shrubs due to wetness showing along the drainage way. Upland soil borings had vegetation and soils noted as normal circumstances due to fallow conditions. Hydrology on-site at the time of the investigation was normal and temperatures were in the mid 80's. A detailed description of the upland plots can be found in Appendix L.

Conclusion

The site consists of 4.26 acres with the majority of the north portion of the parcel, open and fallow area, is considered upland and the south and western portions of the AOI is considered wetland area. The wetland area identified consisted of Wetland Area = 1.317 acres (57,387 square feet) within the project limits. Hydrology on the site appeared to be normal at the time of the site visit, but was definitely headed to dry conditions based on site conditions and hydrologic data. Site conditions noted that the area of investigation is considered uplands (69%) and the wetland (31%) which are classified as Emergent/wet meadow narrow leaved persistent wet soil palustrine (E2K).

The U. S. Army Corps of Engineers and Wisconsin Department of Natural Resources have jurisdiction over wetlands on the area of investigation. The wetland delineation boundary identified by Martenson & Eisele, Inc. was determined based on the mapping and site conditions present at the time of the evaluation. It should be noted that the final authority for jurisdiction of the wetland boundary rests with the appropriate agencies. As a result, there may be adjustments to boundary locations based on reviews by the appropriate agencies at any time. Therefore, any proposed activity in or adjacent to the wetland would require permitting from both the U.S. Army Corps of Engineers and the WDNR, as well as any

permits required from local municipalities (Outagamie County and City of Kaukauna). Wally Sedlar, WDNR Assured Wetland Delineator, was the lead field delineator and report author. Delineations completed by an Assured Delineator have automatic concurrence for the area of investigation and meet criteria for the purposes of State of Wisconsin permits and State-mandated local programs.

Respectfully Submitted,
Martenson & Eisele, Inc.

Wally Sedlar
WDNR Assured Wetland Delineator
Principal Planner/Environmental Program Manager
wallys@martenson-eisele.com
Project # 1-0186-020

References

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Qualifications of Environmental Professional

Wally Sedlar

WDNR Assured Wetland Delineator
Principal Planner/Environmental Program Manager

Mr. Sedlar's responsibilities include conducting Wetland Delineations and Functional Values Assessments, writing Wetland Delineation reports, preparing Wetland General and Individual Fill Permits, Infiltration Testing, Zoning Administration, Comprehensive Plan Writing, Agronomy Consultations and Conducting Environmental Site Assessments.

Experience
Assured Wetland Delineator 2023
Certified Agronomist #379370
Remote Pilot #4477486
Environmental Site Assessments
HTCP ID 200404
ATTS, Nucdensity, PCCTEC-1, TMS, AGGTEC-1
Soil Infiltration Analysis
Natural Resources Soils/Agricultural Instructor
NRCS Technician Soils, Agronomy and Engineering training courses – 30+ years

Education
University of Wisconsin Stevens-Point, Resources Management with Land Use Planning/Soils minors, BS 1988
Master in Quality Curriculum and Education, Marian University, MA 2009

Continuing Education
Grasses, Sedges & Rushes – University of Wisconsin La Crosse 5/2022
Advanced Wetland Delineation Course – University of Wisconsin La Crosse 8/2021
Basic Wetland Delineation Course – Wetland Training Institute Inc. 9/2020
Critical Methods in Wetland Delineation Training 2020
NRCS Soils Training Courses
- -USDA Soils Textural Classification
- -Soil permeability and infiltration
- -Covering Cropping
- -Soil and Water Conservation/Engineering Courses
- -Soil and Textural Classification USDA/USCS
- -590 Nutrient Management Trainings

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
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TTY Access via relay - 711

April 3, 2023

Walter M. Sedlar
Martenson & Eisele, Inc.
1377 Midway Road
Menasha, WI 54952

Subject: 2023 Assured Wetland Delineator Confirmation

Dear Mr. Sedlar:

This letter provides Wisconsin Department of Natural Resources (WDNR) confirmation for the wetland delineations you conduct during the 2023 growing season. You and your clients will not need to wait for the WDNR to review your wetland delineations before moving forward with project planning. This will help expedite the review process for WDNR's wetland regulatory program. Your name and contact information will continue to be listed on our website at: http://dnr.wi.gov/topic/wetlands/assurance.html.

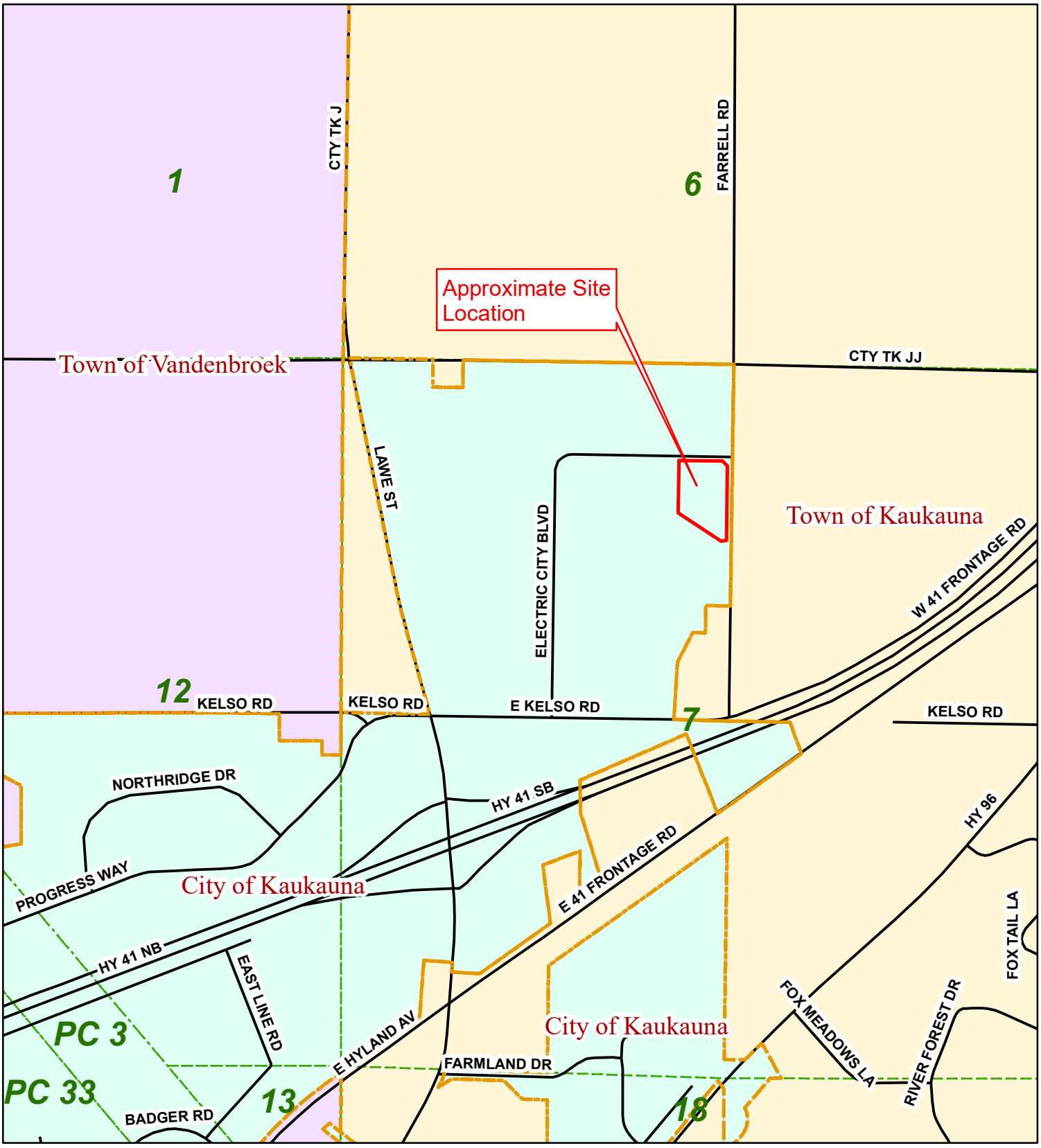
In the instance where a municipality may require a letter of confirmation for your work prior to moving forward in the local regulatory process, this letter shall serve as that confirmation. Although your wetland delineations do not require WDNR field review, inclusion of a Wetland Delineation Report is required for projects needing State authorized wetland, waterway and/or storm water permit approvals.

To comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you or any client has a question regarding your status in the Wetland Delineation Professional Assurance Program, contact me by email at kara.brooks@wisconsin.gov or phone at 414-308-6780. Thank you for all your hard work and best wishes for the upcoming field season.

Sincerely,

Kara Brooks
Wetland Identification Coordinator
Bureau of Watershed Management



N
W E
S

The base map was created with data from Outagamie County Development & Land Services Department who in no event assumes any liability regarding fitness of use of the information and any application by others, is the responsibility of the user.

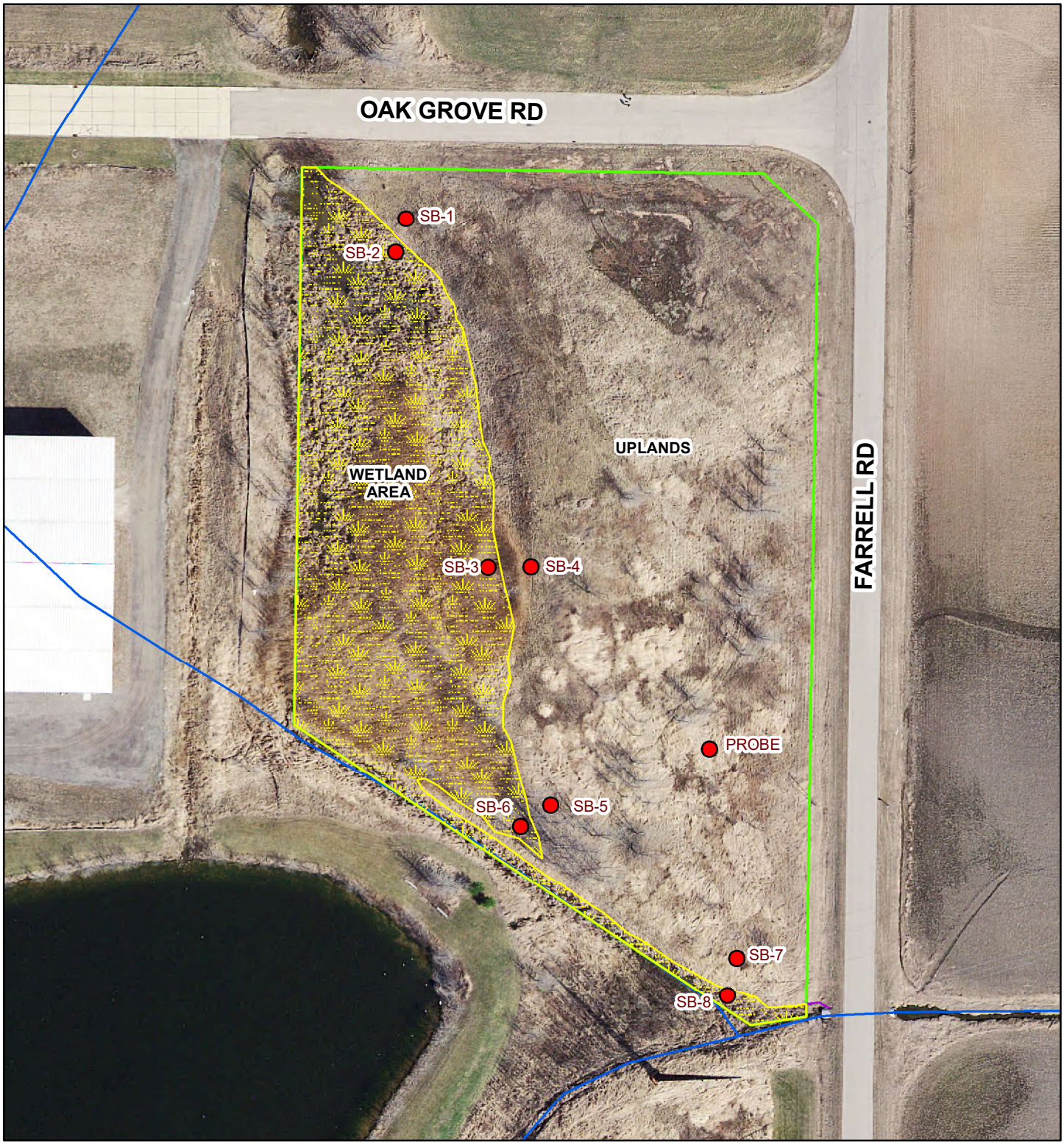
arcgis_outagamie_cnty.mxd_06/19/2023

1:12,000

0 0.05 0.1 0.2 0.3 0.4 Miles

Appendix A
Project Location Map

Parcel ID 322112300
Section 7, T21N, R19E
City of Kaukauna
Outagamie County, Wisconsin



WETLAND AREA = 57,387.10 S.F. (1.317 AC)

SITE LOCATION AREA = 185,486 S.F. (4.258 AC)

Scale 1" = 100'

0 25 50 100 150 200 Feet

Legend

- Boring Locations
- Wetlands
- Wetland Line
- Approximate Site Location
- Waterway

NOTE: AERIALS ARE NOT TIED TO COUNTY COORDINATES AND PHOTOS ARE APPROXIMATE. (FOR REFERENCE USE ONLY)

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Planning
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Surveying
Engineering
Architecture

arcgis10186020gis.mxd_06/26/2023

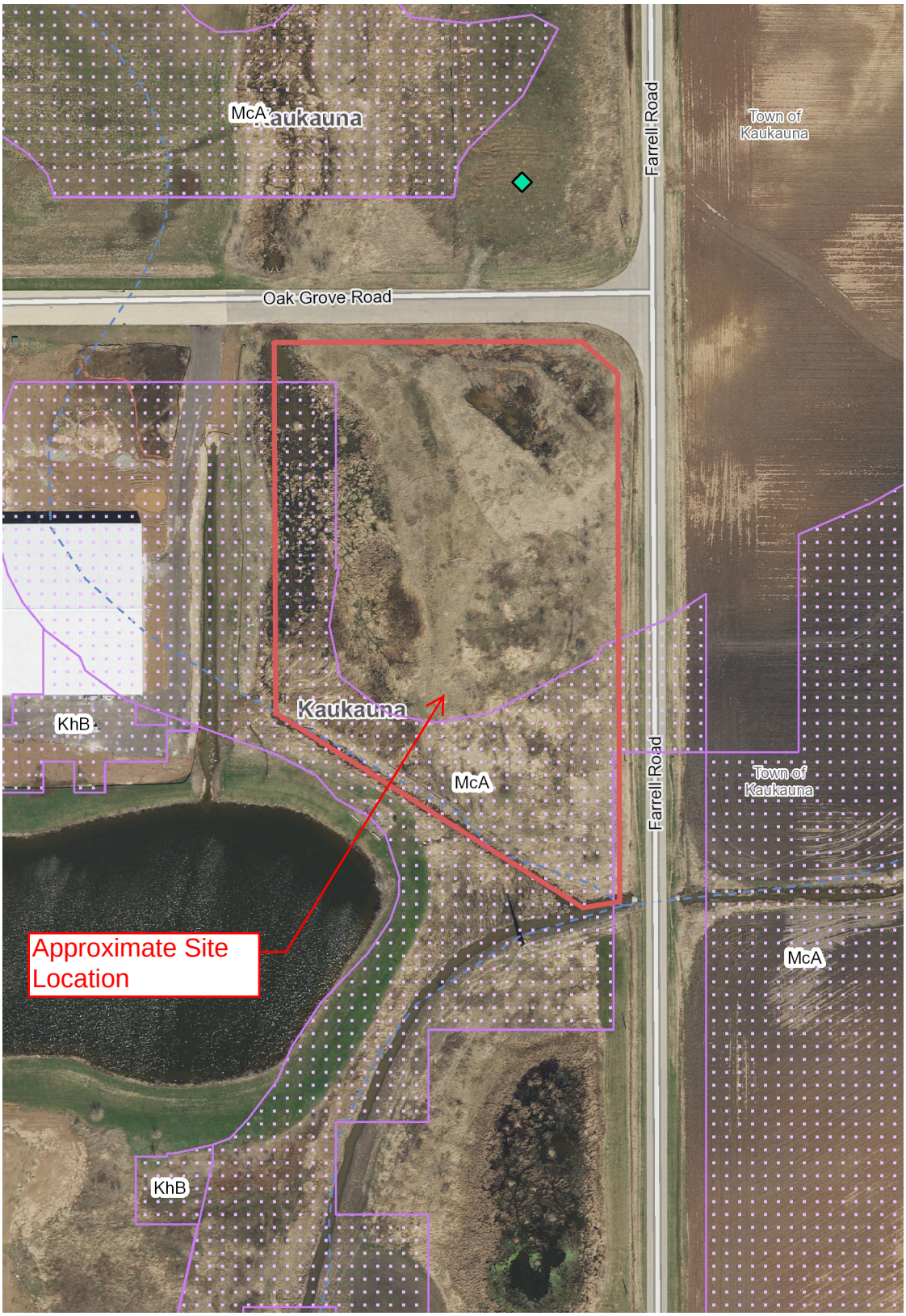
Appendix B

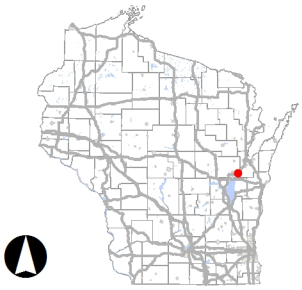
Surveyed Wetland Boundary

Parcel ID # 322112300
Section 7, T21N, R19E
City of Kaukauna, Outagamie County, WI

For: NAI Pfefferle

Appendix C - WDNR Wetland Inventory Map





Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Railroads

0.1 0 0.03 0.1 Miles

1: 1,980

NAD_1983_HARN_Wisconsin_TM

Notes

U.S. Fish and Wildlife Service
National Wetlands Inventory

Appendix D

June 20, 2023

Wetlands_Alaska

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Soil Map—Outagamie County, Wisconsin
(Pfefferle - Farrell and Oak Grove Road)

Appendix E

Map Scale: 1:1,080 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Political Features
- PLSS Township and Range
- PLSS Section

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Outagamie County, Wisconsin
Survey Area Data: Version 16, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 20, 2020—Sep 15, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KhC2	Kewaunee silt loam, 6 to 12 percent slopes, eroded	2.5	52.7%
McA	Manawa silty clay loam, 0 to 3 percent slopes	2.2	47.3%
Totals for Area of Interest		**4.7**	**100.0%**

Appendix F

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Outagamie County, Wisconsin

Pfefferle - Farrell and Oak Grove Road

July 1, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,080 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

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- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
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- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
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- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Political Features

- PLSS Township and Range
- PLSS Section

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- Streams and Canals

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- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

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- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 20, 2020—Sep 15, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KhC2	Kewaunee silt loam, 6 to 12 percent slopes, eroded	2.5	52.7%
McA	Manawa silty clay loam, 0 to 3 percent slopes	2.2	47.3%
Totals for Area of Interest		**4.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Outagamie County, Wisconsin

KhC2—Kewaunee silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2tjxs
Elevation: 610 to 1,020 feet
Mean annual precipitation: 29 to 35 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 134 to 183 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Kewaunee, eroded, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kewaunee, Eroded

Setting

Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Thin loess over clayey till and/or calcareous, dense clayey till

Typical profile

Ap - 0 to 7 inches: silt loam
2Bt - 7 to 27 inches: silty clay
2Cd - 27 to 79 inches: silty clay loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 25 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: F095XA011WI - Clayey Upland
Forage suitability group: Mod AWC, adequately drained (G095AY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095AY005WI)
Hydric soil rating: No

Minor Components

Kewaunee

Percent of map unit: 5 percent
Landform: Moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XA011WI - Clayey Upland
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)
Hydric soil rating: No

McA—Manawa silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t732
Elevation: 730 to 1,000 feet
Mean annual precipitation: 29 to 31 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 178 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Manawa and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manawa

Setting

Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey till and/or calcareous, dense clayey till

Typical profile

Ap - 0 to 9 inches: silty clay loam
Bt - 9 to 35 inches: silty clay
Cd - 35 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 31 to 36 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 7 to 24 inches

Frequency of flooding: NoneRare
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: F095XA007WI - Moist Clayey Lowland
Forage suitability group: Mod AWC, high water table (G095AY004WI)
Other vegetative classification: Mod AWC, high water table (G095AY004WI)
Hydric soil rating: No

Minor Components

Kewaunee

Percent of map unit: 6 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XA011WI - Clayey Upland
Hydric soil rating: No

Poygan, occassionally ponded

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F095XA002WI - Wet Floodplain
Hydric soil rating: Yes

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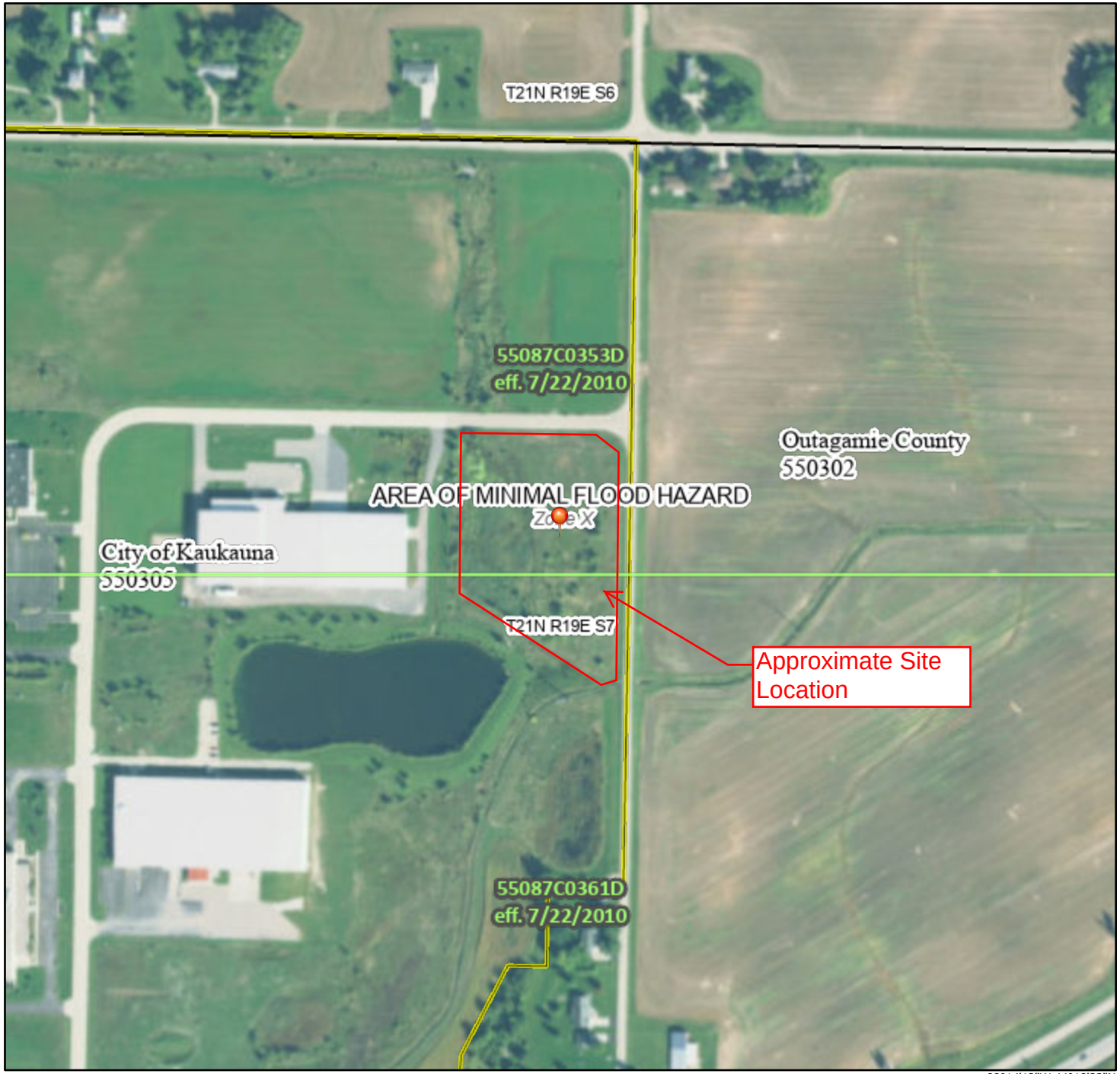
National Flood Hazard Layer FIRMette

FEMA

88°14'50"W 44°18'59"N



88°14'12"W 44°18'33"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

Appendix G

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

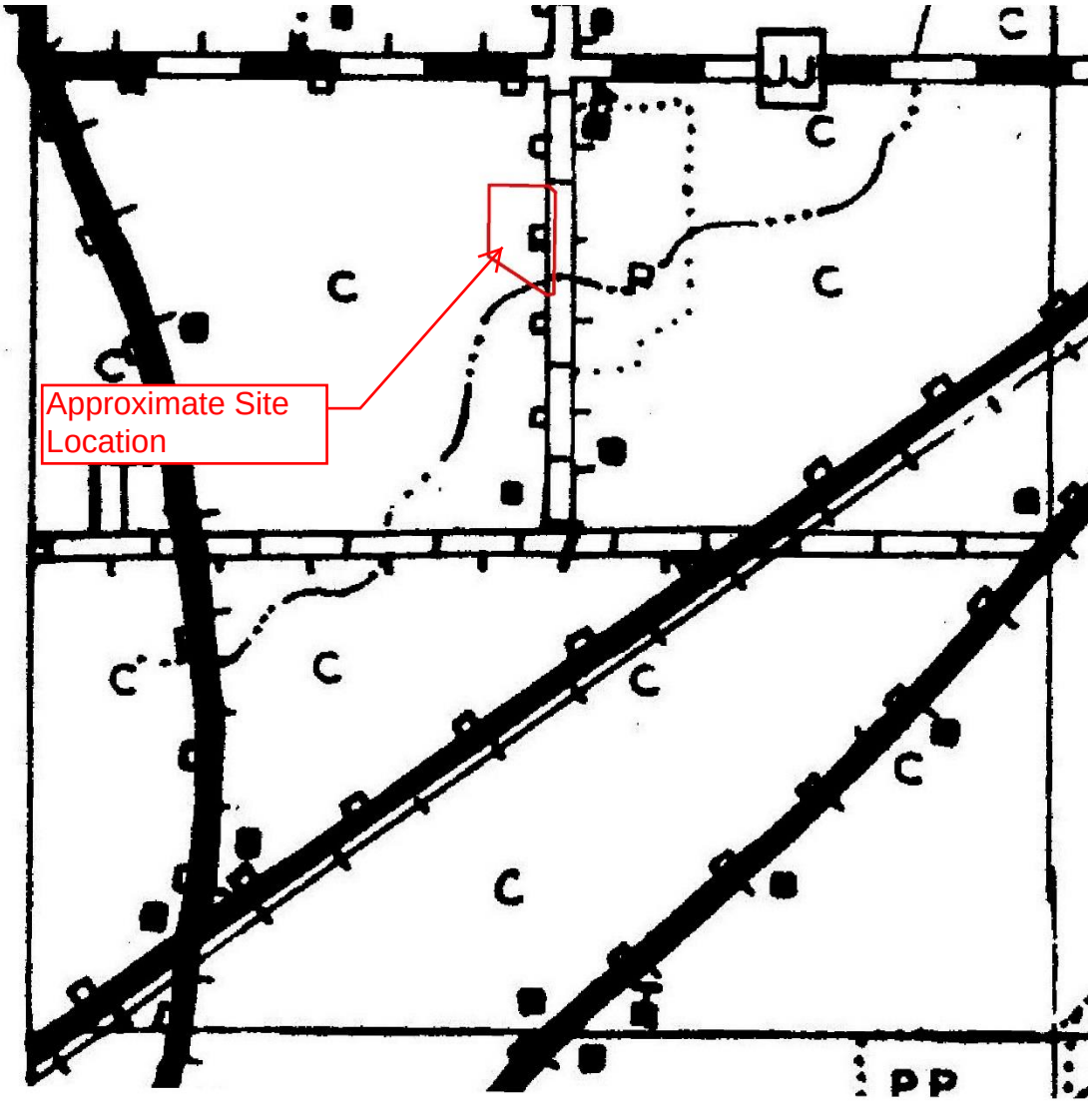
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

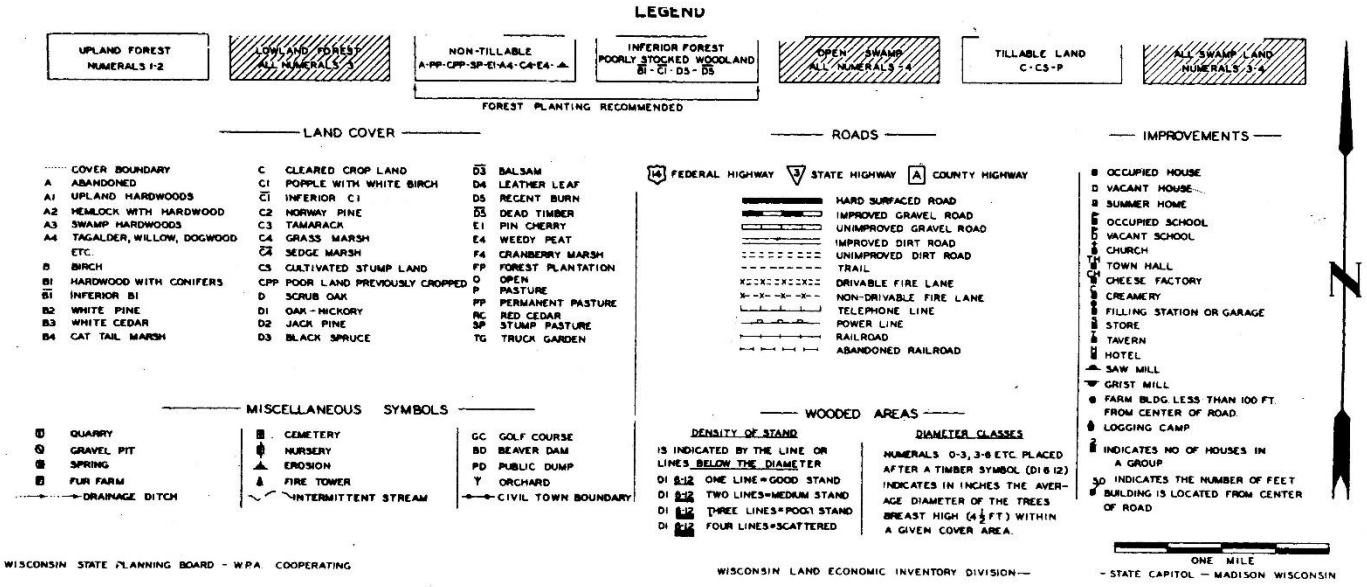
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/20/2023 at 11:03 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Appendix H

Bordner Survey 1933 – 1945



Scale 1" = 100'

0 25 50 100 150 200 Feet

The base map was created with data from Outagamie County Land Information Department who in no event assumes any liability regarding fitness of use of the information and any application by others, is the responsibility of the user.

arcgis10186020gis.mxd_06/20/2023

Legend

- Parcel Lines
- Approximate Site Location
- 1' Contour Lines
- Streams

N W E S

Appendix I
Topographic Map

Section 7, T21N, R19E
City of Kaukauna
Outagamie County, Wisconsin

Appendix J

Areas of Concern for Aerial Review

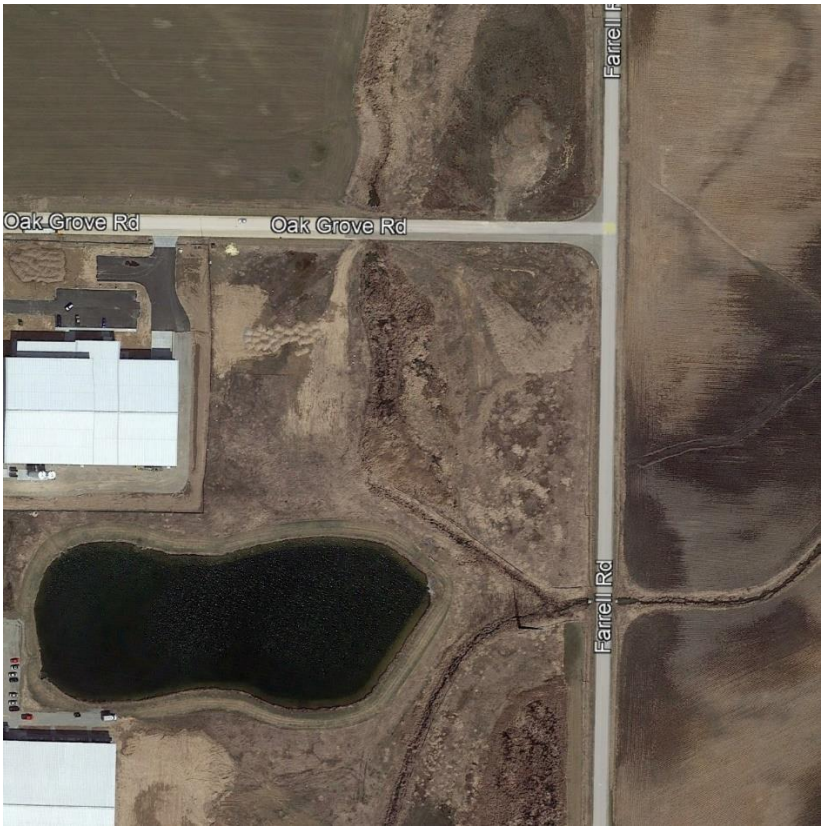
2022 Aerial Photograph – Google Earth

2021 Aerial Photograph – Outagamie County

2018 Aerial Photograph – Outagamie County

Appendix J – Aerial Review

2017 Aerial Photograph – Google Earth



2015 Aerial Photograph – Google Earth

Appendix J – Aerial Review

2014 Aerial Photograph –Outagamie County

2013 Aerial Photograph – Google Earth

Appendix J – Aerial Review

2011 Aerial Photograph – Google Earth

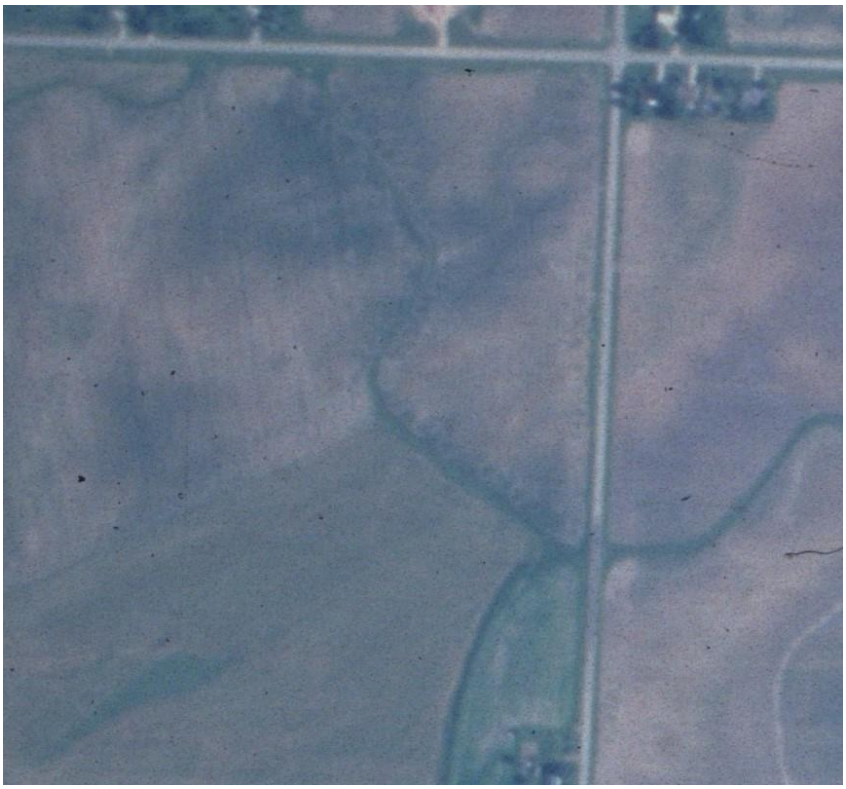
2010 Aerial Photograph – Outagamie County

Appendix J – Aerial Review

2005 Aerial Photograph – Outagamie County

2002 Aerial Photograph – NRCS FSA

Appendix J – Aerial Review



2001 Aerial Photograph – NRCS FSA

2000 Aerial Photograph – Outagamie County

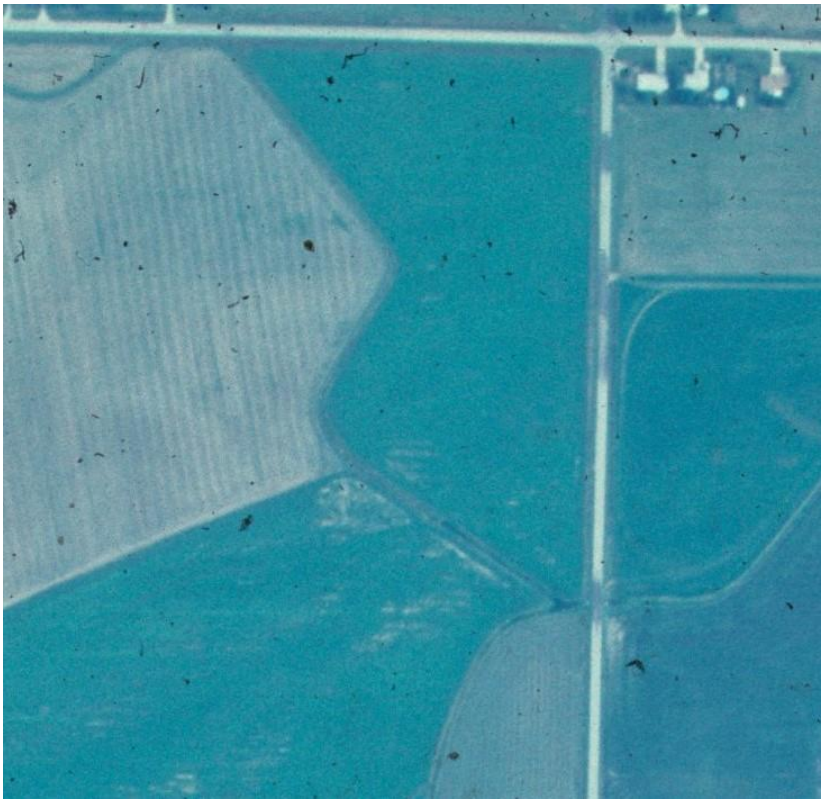
Appendix J – Aerial Review

1998 Aerial Photograph – NRCS FSA

1996 Aerial Photograph – NRCS FSA

Appendix J – Aerial Review

1992 Aerial Photograph – Outagamie County



1990 Aerial Photograph – NRCS FSA

Appendix J – Aerial Review

1988 Aerial Photograph – NRCS FSA

1987 Aerial Photograph – NRCS FSA

Appendix J – Aerial Review

1985 Aerial Photograph – NRCS FSA

1984 Aerial Photograph – NRCS FSA

Appendix J – Aerial Review

1982 Aerial Photograph – NRCS FSA

1980 Aerial Photograph – Outagamie County

Appendix J – Aerial Review

1970 Aerial Photograph – Outagamie County

1964 Aerial Photograph – Outagamie County

Appendix J – Aerial Review

1957 Aerial Photograph – Outagamie County

1938 Aerial Photograph – USDA

Appendix J – Aerial Review

WETS Table

Appendix K

WETS Station: APPLETON, WI

Requested years: 1971 - 2023

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	25.1	9.6	17.3	1.23	0.76	1.49	4	11.7
Feb	28.9	12.2	20.6	1.15	0.72	1.39	3	10.3
Mar	40.5	22.6	31.5	2.16	1.28	2.62	5	7.9
Apr	54.3	34.4	44.3	3.05	2.23	3.58	7	3.1
May	67.9	46.2	57.0	3.44	2.29	4.11	7	0.2
Jun	77.2	56.4	66.8	4.06	2.78	4.84	7	0.0
Jul	81.7	61.5	71.6	3.52	2.37	4.21	6	0.0
Aug	79.1	59.7	69.4	3.87	2.60	4.63	7	0.0
Sep	71.3	51.3	61.3	3.30	1.96	4.00	6	0.0
Oct	57.7	39.5	48.6	2.58	1.76	3.08	6	0.3
Nov	43.0	27.8	35.4	2.20	1.26	2.68	5	3.3
Dec	29.8	15.7	22.8	1.66	1.01	2.01	4	11.6
Annual:					28.99	34.65		
Average	54.7	36.4	45.6	-	-	-	-	-
Total	-	-	-	32.21			68	48.2

GROWING SEASON DATES

Years with missing data:	24 deg = 2	28 deg = 2	32 deg = 2
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 51	28 deg = 51	32 deg = 51
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	4/7 to 10/31: 207 days	4/24 to 10/19: 178 days	5/6 to 10/7: 154 days
70 percent *	4/4 to 11/4: 214 days	4/19 to 10/24: 188 days	5/2 to 10/11: 162 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1893	M1.19	M1.41	M1.38	M5.09	2.05	M1.65							12.77
1894													
1895													
1896													
1897													
1898													
1899													
1900													
1901				0.20	1.57	3.73	5.27	1.18	3.09	2.26	0.44	0.78	18.52
1902	M0.55	1.54	1.72	1.58	5.20	3.27	6.37	1.99	1.36	1.58	1.44	2.81	29.41
1903	M1.27	2.27	3.64	2.31	3.56	1.24	6.75	4.36	3.47	2.85	M1.23	0.46	33.41
1904	0.57	M0.93	3.49	2.42	5.96	1.23	7.06	1.08	3.65	3.48	0.06	1.74	31.67

1905	1.31	0.93	1.96	1.31	4.35	6.38	6.23	5.02	3.80	1.35	M1.58	1.18	35.40
1906	1.77	M0.59	1.86	2.01	1.87	5.36			3.73	1.90	4.19	1.64	24.92
1907	2.05	0.06	1.98	3.74	3.46	2.66	4.03	4.20	3.45	0.49	1.53	1.54	29.19
1908	0.87	2.30	2.58	2.99	5.39	3.10	2.37	1.64	1.82	1.30	1.89	2.18	28.43
1909	1.05	1.64	1.78	4.77	2.48	3.02	1.40	2.24	2.09	0.84	M2.37	2.85	26.53
1910	0.51	0.88	0.33	3.40	2.31	0.78	0.88	4.10	6.12	1.14	2.44	0.81	23.70
1911	0.47	2.33	1.51	1.16	5.04	4.38	1.85	2.64	6.30	6.34	2.59	2.04	36.65
1912	0.73	0.50	0.41	2.13	4.94	0.17	M5.37	6.07	2.88	1.79	1.24	0.92	27.15
1913	1.48	1.18	5.35	2.48	7.63	2.04	7.02	1.62	3.40	2.80	1.59	0.49	37.08
1914	0.82	0.67	1.48	3.56	3.69	8.50	4.87	4.62	3.46	1.81	1.57	0.77	35.82
1915	1.13	1.42	0.60	0.21	M3.18	3.20	2.71	2.01	7.77	1.79	3.78	0.62	28.42
1916	1.98	1.74	1.63	2.11	5.64	4.88	0.40	1.63	5.35	5.23	2.43	0.93	33.95
1917	2.02	0.52	2.52	2.62	M1.53	M5.02	3.70	1.51	3.71	4.10	0.20	0.53	27.98
1918	M3.01	1.02	1.20	0.95	6.78	2.31	2.16	2.81	1.64	1.94	2.70	2.14	28.66
1919	0.86	1.09	0.74										2.69
1920													
1921													
1922													
1923													
1924													
1925													
1926											3.34	2.75	6.09
1927	1.15	0.12	2.00	2.37	4.72	1.47	3.46	0.94	5.90	2.17	2.82	1.10	28.22
1928	0.32	3.34	2.55	2.07	2.01	4.05	2.74	4.19	4.12	3.38	1.68	1.48	31.93
1929	M4.35	1.44	1.88	6.64	2.67	4.49	2.76	1.60	3.08	1.74	0.98	1.42	33.05
1930	1.76	1.12	2.37	1.10	3.52	3.59	2.60	1.38	1.72	2.03	0.72	0.36	22.27
1931	0.85	0.97	1.72	0.72	1.45	3.09	1.11	1.10	7.05	2.57	3.88	1.03	25.54
1932	1.86	1.19	0.95	1.12	3.89	2.77	2.67	1.82	0.71	1.65	1.23	1.93	21.79
1933	1.15	1.12	2.16	2.19	3.69	2.28	2.92	3.35	2.22	2.73	0.74	1.01	25.56
1934	0.71	0.24	1.50	1.26	1.91	5.33	2.64	3.16	2.84	1.19	5.93	0.91	27.62
1935	1.17	M0.80	0.71	2.60	1.76	6.27	2.04	1.82	3.79	1.64	1.97	0.97	25.54
1936	1.41	1.35	1.27	1.04	2.54	2.90	0.92	M6.10	3.12	2.17	0.80	1.83	25.45
1937	2.50	2.39	0.24	3.35	2.49	2.40	0.91	1.61	1.83	3.69	1.68	1.03	24.12
1938	2.50	3.10	1.83	2.22	2.10	2.86	3.73	4.24	8.50	0.98	1.80	2.28	36.14
1939	1.62	1.15	0.77	1.14	1.59	5.48	2.46	3.00	4.67	1.91	M0.51	M0.57	24.87
1940	1.30	0.50	0.88	2.89	3.61	4.98	2.13	5.53	1.27	2.78	3.23	1.76	30.86
1941	1.42	0.74	0.76	2.44	4.32	3.18	2.08	2.72	5.44	3.12	1.57	1.74	29.53
1942	0.53	0.87	1.73	3.04	8.79	5.54	3.05	3.06	5.	1.	M1.	2.38	36.

									29	37	11		76
1943	1.25	0.91	1.95	1.95	4.55	5.37	2.46	3.39	1.72	0.96	2.24	0.21	26.96
1944	0.82	1.30	1.77	2.19	2.21	8.52	1.40	3.07	2.47	0.67	3.57	0.78	28.77
1945	0.41	1.73	1.11	3.98	2.68	4.64	0.96	2.60	6.54	0.94	3.78	M1.11	30.48
1946	1.82	0.55	2.29	0.55	3.54	5.27	1.14	3.19	2.60	1.39	M3.18	2.08	27.60
1947	2.04	0.30	2.16	4.39	4.09	3.98	2.21	3.41	3.13	1.79	1.76	1.37	30.63
1948	0.65	2.16	2.37	3.05	1.80	6.04	3.61	1.96	1.67	0.96	4.72	1.95	30.94
1949	2.15	0.92	3.07	2.53	0.80	2.43	4.74	1.44	1.36	1.26	1.08	1.20	22.98
1950	2.30	1.49	2.93	2.95	1.07	2.46	6.56	1.93	3.06	0.93	1.32	2.16	29.16
1951	0.85	M1.78	3.05	4.70	0.91	2.56	4.35	3.37	2.38	4.04	1.56	1.29	30.84
1952	2.53	0.98	2.17	1.64	3.46	3.04	5.04	2.26	0.38	0.09	2.25	1.65	25.49
1953	1.08	3.56	1.99	5.45	1.40	2.55	4.26	2.80	1.61	0.41	0.28	1.78	27.17
1954	0.55	1.40	1.42	4.56	4.13	4.21	3.30	2.19	6.07	4.71	1.11	0.82	34.47
1955	0.59	1.40	1.64	2.78	2.82	4.21	3.37	1.13	0.98	3.98	1.40	1.33	25.63
1956	0.75	0.77	3.18	1.83	3.92	4.84	6.95	4.01	1.89	0.75	2.93	0.97	32.79
1957	0.62	0.49	1.22	3.56	5.63	3.98	2.51	2.01	1.95	1.39	3.98	1.72	29.06
1958	0.54	0.24	0.52	3.01	1.52	2.83	4.19	4.08	3.67	1.90	1.65	0.17	24.32
1959	1.61	2.47	3.26	3.74	3.90	1.68	3.62	3.89	5.52	4.37	1.79	3.12	38.97
1960	1.35	1.19	1.01	4.21	6.96	2.69	3.22	5.37	6.77	2.49	0.86	0.17	36.29
1961	0.26	1.31	3.05	2.12	1.70	7.05	7.29	4.85	5.68	3.12	3.24	1.31	40.98
1962	1.30	2.64	1.71	2.94	2.77	4.24	2.91	4.43	2.84	2.38	0.64	1.13	29.93
1963	0.42	0.52	3.07	1.78	2.82	4.14	3.72	2.13	3.58	0.72	1.71	0.53	25.14
1964	0.97	0.18	1.31	2.71	5.24	1.67	5.47	2.41	3.77	0.50	2.47	0.80	27.50
1965	0.90	1.04	3.03	4.29	2.61	3.19	2.35	3.94	7.71	1.95	1.92	2.72	35.65
1966	1.69	2.38	3.28	1.57	1.35	2.06	2.49	5.08	1.10	0.64	1.29	2.22	25.15
1967	2.62	0.80	1.11	3.24	2.81	7.67	1.84	2.44	0.32	6.41	1.47	1.36	32.09
1968	0.85	0.30	0.67	4.74	3.51	9.06	2.63	3.39	3.73	1.49	0.98	3.32	34.67
1969	2.45	0.04	0.97	3.13	3.54	5.90	4.49	1.96	2.02	3.67	0.48	0.99	29.64
1970	0.30	0.12	0.89	1.58	4.84	1.04	3.62	1.00	6.51	3.19	2.42	1.39	26.90
1971	1.63	2.71	2.18	1.36	1.96	2.37	2.18	4.36	3.95	2.20	3.58	3.13	31.61
1972	0.47	0.94	2.21	1.84	1.81	1.97	3.16	6.81	5.27	2.22	1.32	2.32	30.34
1973	1.69	0.94	3.08	3.77	7.83	2.62	2.05	2.57	2.54	3.51	1.53	1.86	33.99
1974	1.35	0.83	1.53	2.71	4.77	5.21	1.73	1.33	1.53	2.10	1.92	1.63	26.64
1975	1.29	1.56	2.88	2.78	3.37	3.89	3.37	7.70	2.47	0.44	3.29	0.88	33.92
1976	1.32	1.51	4.19	3.73	1.99	0.64	4.72	0.50	0.	0.	0.04	0.35	20.

									45	89			33
1977	0.35	1.39	4.28	3.02	3.99	2.34	2.38	2.60	3.18	1.88	2.96	1.80	30.17
1978	1.26	0.19	0.14	3.91	5.21	2.21	5.10	2.06	6.29	2.28	3.32	1.24	33.21
1979	1.33	0.98	4.70	1.78	3.13	3.26	1.74	5.21	0.65	2.89	1.82	1.20	28.69
1980	2.18	0.42	1.08	2.54	2.06	4.99	3.01	6.76	3.25	2.35	1.31	0.76	30.71
1981	0.04	3.66	0.38	5.54	0.39	2.50	1.69	6.10	3.98	3.59	0.98	1.29	30.14
1982	2.57	0.20	2.14	2.82	3.22	1.99	3.45	5.12	1.19	1.79	4.34	3.01	31.84
1983	0.99	1.75	1.57	1.91	6.08	1.79	3.17	6.01	4.81	2.56	2.25	1.01	33.90
1984	0.49	1.08	1.92	3.95									7.44
1985		1.69	2.78	3.60	1.79	2.77	3.50	5.67	5.71	2.68	5.87	1.59	37.65
1986	0.63	1.41	2.11	1.93	1.31	5.89	6.18	1.66	9.15	2.12	1.50	0.65	34.54
1987	0.76	0.27	1.71	2.72	3.28	2.04	1.83	4.51	2.22	1.55	2.99	1.81	25.69
1988	1.19	0.43	1.23	3.09	0.22	1.01	1.94	3.26	5.41	2.68	3.15	1.12	24.73
1989	0.70	0.52	2.29	0.80	5.06	1.67	2.99	1.62	0.73	3.29	1.55	0.34	21.56
1990	0.71	0.61	3.72	1.50	4.26	9.07	2.06	2.90	4.18	2.65	1.99	2.21	35.86
1991	0.53	0.70	2.58	2.70	2.34	2.12	5.22	2.29	2.66	4.28	3.16	1.53	30.11
1992	0.87	0.59	2.35	3.46	1.42	2.08	3.04	2.15	7.03	1.29	5.20	2.61	32.09
1993	1.63	0.31	0.75	4.85	3.46	8.04	5.91	2.67	2.61	1.84	2.26	0.31	34.64
1994	1.48	1.34	1.12	4.09	1.79	2.48	8.21	5.39	2.29	1.23	1.98	0.15	31.55
1995	0.74	0.37	1.80	2.64	3.12	2.54	2.09	10.30	1.62	4.42	2.49	1.20	33.33
1996	1.69	1.05	1.02	3.65	1.43	6.22	3.27	1.34	1.23	2.90	0.80	1.47	26.07
1997	1.66	1.36	1.82	0.47	3.81	5.34	4.31	4.06	1.88	1.08	0.47	0.57	26.83
1998	1.90	0.85	2.77	2.93	2.33	7.38	0.60	2.44	2.03	1.49	1.56	0.41	26.69
1999	2.50	1.00	0.16	2.76	3.90	5.22	4.63	2.85	0.66	0.79	1.17	0.91	26.55
2000	0.82	M0.52	0.85	2.19	4.70	3.20	3.00	2.99	4.74	0.50	1.59	2.05	27.15
2001	0.70	1.15	0.54	2.63	3.64	5.77	1.07	3.32	1.75	1.44	1.75	1.16	24.92
2002	0.60	1.01	2.32	3.80	2.29	5.09	1.85	2.28	2.37	3.54	0.27	1.02	26.44
2003	0.61	0.76	2.59	2.64	3.86	3.36	6.50	3.74	4.32	1.39	4.66	1.61	36.04
2004	1.10	1.21	4.04	1.06	9.04	4.22	1.78	2.20	0.57	3.38	2.00	2.22	32.82
2005	1.34	1.49	1.18	1.72	2.66	2.30	2.79	4.34	3.27	1.24	3.27	1.19	26.79
2006	1.92	1.09	1.40	2.63	5.68	1.75	2.28	1.54	2.55	3.08	1.27	2.53	27.72
2007	1.23	1.02	2.45	2.13	2.62	3.69	2.80	5.43	3.05	4.11	0.20	3.15	31.88
2008	2.96	2.06	1.00	6.45	1.92	5.55	4.54	3.39	1.85	2.07	1.22	3.78	36.79
2009	0.57	1.22	3.09	3.22	3.39	2.97	1.26	4.91	1.43	5.23	1.27	2.46	31.02
2010	0.51	0.78	0.83	4.40	4.02	6.55	13.23	3.64	4.30	2.38	1.61	1.34	43.59

2011	0.94	1.59	2.86	6.38	2.77	5.89	4.12	1.78	4.62	1.69	3.89	1.28	37.81
2012	1.01	1.08	2.67	2.74	4.36	2.32	2.79	3.21	0.98	5.88	0.98	2.09	30.11
2013	2.75	1.99	1.99	3.83	3.42	5.84	3.66	1.43	2.09	2.95	4.04	1.57	35.56
2014	1.18	1.24	1.17	5.00	3.91	7.79	1.89	4.70	3.52	3.13	1.93	1.84	37.30
2015	0.57	0.42	0.58	2.60	5.39	4.66	2.23	3.71	5.41	2.85	3.01	6.14	37.57
2016	1.43	1.01	3.86	1.91	3.27	6.02	3.78	2.99	5.37	2.72	2.00	2.25	36.61
2017	2.65	0.82	3.00	4.43	3.42	6.39	3.10	4.99	2.90	3.93	1.25	0.87	37.75
2018	0.74	1.44	0.78	4.35	4.95	4.04	3.73	7.18	6.32	5.01	1.56	1.63	41.73
2019	2.55	2.81	1.72	3.99	5.03	5.62	3.60	4.11	9.16	5.07	2.59	2.78	49.03
2020	1.54	1.02	4.17	1.47	5.09	5.06	6.08	1.85	2.80	4.12	2.59	0.62	36.41
2021	0.83	1.29	1.79	2.57	2.90	5.63	6.38	7.21	1.56	1.59	0.77	1.93	34.45
2022	0.28	0.43	5.46	2.95	3.16	4.04	3.44	6.22	4.23	1.51	3.63	1.58	36.93
2023	1.42	2.81	3.70	3.48	1.81	3.73	M0.00						16.95

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2023-07-01

Appendix L

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-1

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): Mid slope Local relief (concave, convex, none): convex Slope (%): 8

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: McA - Manawa silty clay loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area**	
Hydric Soil Present?	Yes	No X	**within a Wetland?**	**Yes** **No** X
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
Upland, with step slope. Fill area from past human impacts.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** x

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Taraxacum officinale*	10	No	FACU
2. *Cirsium vulgare*	10	No	FACU
3. *Solidago canadensis*	15	Yes	FACU
4. *Daucus carota*	20	Yes	UPL
5. *Lactuca serriola*	10	No	FACU
6. *Cirsium arvense*	20	Yes	FACU
7. *Poa pratensis*	10	No	FACU
8.			
9.			
10.			
11.			
12.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	75	x 4 =	300
UPL species	20	x 5 =	100
Column Totals:	95 (A)		400 (B)
Prevalence Index = B/A =			4.21

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** ___ **No** x

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

SOIL

Sampling Point: SB-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 3/3	100					Loamy/Clayey	Fill
4-24	5YR 4/3	90					Loamy/Clayey	
	5YR 5/4	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

Upland soil conditions.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-2

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): toe Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: McA - Manawa silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes x	No	**within a Wetland?**	**Yes** x **No**
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland Hydrology Indicators, Hydrophytic vegetation and Hydric soils noted at this soil boring. Depressional area with wetlands identified, ground water and surface water fed conditions.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- x Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No x	Depth (inches):	
Water Table Present?	Yes x	No	Depth (inches):	21
Saturation Present? (includes capillary fringe)	Yes x	No	Depth (inches):	17

Wetland Hydrology Present? **Yes** x **No**

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Typha angustifolia*	65	Yes	OBL
2. *Equisetum arvense*	5	No	FAC
3. *Cicuta maculata*	2	No	OBL
4. *Carex retrorsa*	2	No	OBL
5. *Carex stipata*	2	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	76	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	71	x 1 =	71
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	86 (A)		116 (B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation noted at this soil boring.

SOIL

Sampling Point: SB-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	5YR 3/2	80	5YR 3/4	20	C	PL	Loamy/Clayey	Distinct redox concentrations
7-15	5YR 3/2	40	N 4/	30	D	M	Loamy/Clayey	
	5YR 2.5/1	30						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Hydric soil conditions found at this soil boring. Redox Dark Surface (F6). Large depressional area.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-3

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): Toe Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: concave Datum:

Soil Map Unit Name: McA - Manawa silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes x	No	**within a Wetland?**	**Yes** x **No**
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland Hydrology Indicators,Hydrophytic vegetation and Hydric soils present at this soil boring. Wetlands.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phragmites australis*	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Only Phragmites present, hydrophytic vegetation noted.

SOIL

Sampling Point: SB-3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/2	85	5YR 3/4	15	C	PL	Loamy/Clayey	Distinct redox concentrations
12-24	7.5YR 3/2	75	5YR 3/4	25	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Hydric soils present, Redox Dark Surface (F6).

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-4

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): shoulder Local relief (concave, convex, none): convex Slope (%): 12

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: KhC2 - Kewaunee silt loam NWI classification: upl

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No x	**Is the Sampled Area**		
Hydric Soil Present?	Yes	No x	**within a Wetland?**	**Yes**	**No** x
Wetland Hydrology Present?	Yes	No x	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Upland conditions exist at this soil boring. Fill area noted from years ago.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** x

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Solidago canadensis*	20	Yes	FACU
2. *Poa pratensis*	20	Yes	FACU
3. *Daucus carota*	20	Yes	UPL
4. *Asclepias syriaca*	5	No	UPL
5. *Taraxacum officinale*	5	No	FACU
6. *Melilotus officinalis*	10	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	25	x 5 =	125
Column Totals:	80 (A)		345 (B)
Prevalence Index = B/A =			4.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** ___ **No** x

Remarks: (Include photo numbers here or on a separate sheet.)
Upland vegetation noted at this soil boring.

SOIL

Sampling Point: SB-4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 3/2	100					Loamy/Clayey	fill
4-24	5YR 4/4	100					Loamy/Clayey	fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Upland soil conditions exist at this soil boring.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-5

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): midslope Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: McA - Manawa silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No x	**Is the Sampled Area**		
Hydric Soil Present?	Yes	No x	**within a Wetland?**	**Yes**	**No** x
Wetland Hydrology Present?	Yes	No x	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Upland conditions at this soil borning, some evideence of wetness, due to Reed Canarygrass, but other upland species also noted so not wetland area.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** x

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	40	Yes	FACW
2. *Cirsium arvense*	15	Yes	FACU
3. *Lactuca serriola*	15	Yes	FACU
4. *Taraxacum officinale*	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	75 (A)		220 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** ___ **No** x

Remarks: (Include photo numbers here or on a separate sheet.)
Upland vegetion noted at this soil boring. Prevalence Index not met due to soil conditions not meeting hydric soil.

SOIL

Sampling Point: SB-5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Loamy/Clayey	
9-14	10YR 3/2	50					Loamy/Clayey	
	5YR 3/3	50						
14-24	5YR 4/3	85	5YR 4/6	15	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Upland soil conditions exist at this soil boring.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-6

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): ditch bottom Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: McA - Manawa silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes x	No	**within a Wetland?**	**Yes** x **No**
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland Hydrology Indicators, Hydrophytic vegetation and Hydric soils found at this soil boring. Ditch bottom for drainage noted and wetlands noted as well.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	45	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	45	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Populus deltoides*	25	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Geum aleppicum*	10	No	FAC
2. *Phalaris arundinacea*	35	Yes	FACW
3. *Phragmites australis*	15	Yes	FACW
4. *Taraxacum officinale*	5	No	FACU
5. *Cerastium arvense*	5	No	FACU
6. *Solidago canadensis*	5	No	FACU
7. *Rhamnus cathartica*	5	No	FAC
8. *Ambrosia artemisiifolia*	5	No	FACU
9. *Equisetum arvense*	5	No	FAC
10.			
11.			
12.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	90	x 3 =	270
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	160 (A)		450 (B)

Prevalence Index = B/A = 2.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation noted at this soil boring.

SOIL

Sampling Point: SB-6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 2.5/2	100					Loamy/Clayey	
4-12	7.5YR 2.5/2	50	5YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations
	5YR 4/4	30						
12-24	5YR 4/1	45	5YR 4/6	15	C	M	Loamy/Clayey	Prominent redox concentrations
	5YR 4/4	40						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Hydric soil conditions exist at this soil boring. Redox Dark Surface (F6).

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-7

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): flat area Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: McA - Manawa silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No x	**Is the Sampled Area**		
Hydric Soil Present?	Yes	No x	**within a Wetland?**	**Yes**	**No** x
Wetland Hydrology Present?	Yes	No x	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
Upland conditions exist at this soil boring. Bank of ditch area.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** **No** x

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

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

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer negundo*	2	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	2 =Total Cover		
Herb Stratum (Plot size: 5')			
1. *Bromus arvensis*	70	Yes	FACU
2. *Asclepias syriaca*	10	No	UPL
3. *Cornus racemosa*	5	No	FAC
4. *Cirsium arvense*	5	No	FACU
5. *Equisetum arvense*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. *Vitis riparia*	2	No	FAC
2.			
3.			
4.			
	2 =Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	14	x 3 =	42
FACU species	75	x 4 =	300
UPL species	10	x 5 =	50
Column Totals:	99 (A)		392 (B)
Prevalence Index = B/A =			3.96

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** ___ **No** x

Remarks: (Include photo numbers here or on a separate sheet.)
Upland plant species noted at this soil boring.

SOIL Sampling Point: SB-7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 2/2	100					Loamy/Clayey	THICK MINERAL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Upland soil conditions exist at this soil boring.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NAI Pfefferle City/County: City of Kaukauna/Outagamie Sampling Date: 6/22/2023

Applicant/Owner: City of Kaukauna - 322112300 State: WI Sampling Point: SB-8

Investigator(s): Wally Sedlar Section, Township, Range: S 7, T21N R19E

Landform (hillside, terrace, etc.): ditch bottom Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR K, MLRA 95A Lat: Long: Datum:

Soil Map Unit Name: McA - Manawa silty clay loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No	**Is the Sampled Area**	
Hydric Soil Present?	Yes x	No	**within a Wetland?**	**Yes** x **No**
Wetland Hydrology Present?	Yes x	No	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
Wetland Hydrology Indicators, Hydrophytic vegetation and Hydric soils noted at this soil boring - wetland identified. Ditch bottom with defined bed and banks.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- 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)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- x Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- x FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:
According to the US Army Corps of Engineers Antecedent Precipitation as calculated and from the NRCS WETS Table for Brillion/Chilton (Appleton area), WI precipitation for the three-month period prior to on site investigation of the Area of Interest (April-June) is considered to be drier than normal. Rainfall for the month of June is measured at .7", with approximately .7 inch of rain in the last week. June is considerded dry for the month base on precipitation. Based on the information provided, recent weather conditions should provide wetland hydrology conditions to be evident for this area of investigation.

VEGETATION – Use scientific names of plants. Sampling Point: SB-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	70	Yes	FACW
2. *Typha angustifolia*	15	No	OBL
3. *Equisetum arvense*	5	No	FAC
4. *Asclepias incarnata*	5	No	OBL
5. *Cerastium arvense*	2	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	97 =Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	70	x 2 =	140
FAC species	5	x 3 =	15
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	97 (A)		183 (B)

Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation noted at this soil boring.

SOIL

Sampling Point: SB-8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	7.5YR 2.5/2	85	5YR 3/4	15	C	M	Loamy/Clayey	Distinct redox concentrations
15-22	10YR 4/1	80	7.5YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
	7.5YR 2.5/2	10						
22-24	N 5/	90	7.5YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx) Hydric soil conditions exsit at this soil boirng. Redox Dark Surface (F6).

View of Soil Boring - 1, looking south

View of Soil Boring – 1, looking east

View of Soil Boring - 2, looking north

View of Soil Boring – 2, looking south

View of Soil Boring - 3, looking north

View of Soil Boring – 3, looking south

View of Soil Boring - 4, looking north

View of Soil Boring – 4, looking west

View of Soil Boring - 5, looking south

View of Soil Boring – 5, looking west

View of Soil Boring - 6, looking south

View of Soil Boring – 6, looking east

View of Soil Boring - 7, looking south

View of Soil Boring – 7, looking east

View of Soil Boring - 8, looking north

View of Soil Boring – 8, looking west


Site #1
Site #2
Site #3

REMOTELY SENSED DATA – SLIDES (SLIDE REVIEW)

*Indicate **N**ORMAL/**W**ET/**D**RY year

*YEARS / SITE #	W 2022	W 2021	W 2018	W 2017	W 2015	W 2014	W 2013	W 2011	W 2010	D 2005	D 2001	D 2000	D 1996	N 1992	D 1988
1	Y,NC CT	Y,NC CT	Y,CR IND	Y,NC IND	Y,NC CT	Y,NC CT	Y,NC IND	Y,NC CT	Y,NC CT	Y,CR CT	Y, CR CT	Y,CR CT	Y,CR CT	Y,CR CT	Y, CR CT
2	N,NC CT	N,NC CT	N,NC CT	N, NC	N,NC	N,NC	N,CR	N,NC	N,NC	N,CR	N,CR	N,NC	N,NC	N,CR	N,CR
3	Y,NC CT	Y,NC CT	Y,NC CT	Y,NC CT	N,NC	Y,NC CT	Y,NC	Y,NC CT	Y,NC CT	N,CR	Y,CR CT	N,CR	Y,CR CT	Y,CR CT	Y,CR CT

Site #1 = 15/15 - 100% Wetness signature

Site #2 = 0/15 - 0% wetness (upland shurbs)

Site #3 = 12/15 - 80% wetness signature

Required Codes:

1) **Y** = slide signal shows a definite indication of wetness
N = slide signal is NOT an indication of wetness

2) **CR** = cropped (commodity/row crop or plowed/tilled) (commodity crops=corn, soybeans, wheat, oats) NV = Normal Healthy Crop
NC = not cropped **and** **B** = buildings/structures (farmstead), **H** = hay, **P** = pasture (livestock), **W** = woodland

3) **IND** (Inundation) **such as:** water, mud flat, bare spot, drowned crop **or** **CT** (Color Tone Difference) **such as:** dark green, light green, yellow, brown, black

4) **Manipulation:** **D** = ditch, **T** = tiled, **F** = filled, **TBR** = tree/brush removal
AP = Altered pattern
DIST = Disturbed land

3 Examples:	Y, CR CT, D	N, NC-P D	Y, NC-P IND

Appendix N