Assured Wetland Delineation Report

Downing Farm Property

City of Waukesha, Waukesha County, Wisconsin

July 26, 2019

Project Number: 20190195

506 Springdale Street | Mount Horeb, WI 53572 | www.heartlandecological.com

Downing Farm Property

City of Waukesha, Waukesha County, Wisconsin

July 26, 2019

Prepared for:

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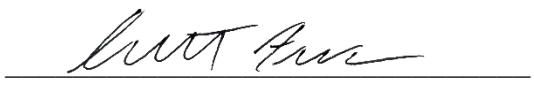

Prepared by: Scott Fuchs, Env. Tech.

Reviewed by: Jeff Kraemer, Principal

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1.0 Introduction

Heartland Ecological Group, Inc. ("Heartland") completed an assured wetland determination and delineation on the Downing Farm site on June 4, 2019 at the request of Belinski Homes. Fieldwork was completed by Jeff Kraemer, an assured delineator qualified via the Wisconsin Department of Natural Resources (WDNR) Wetland Delineation Assurance Program (Appendix E, Qualifications). The 81.31-acre site (the "Study Area") is north of Summit Avenue, in the western half of Section 31, T7N, R19E, City of Waukesha, Waukesha County, WI (Figure 1, Appendix A). The purpose of the wetland delineation was to determine the location and extent of wetlands within the Study Area.

Four (4) wetland areas totaling approximately 4.43 acres were delineated and mapped within the Study Area (Figure 6, Appendix A). Wetlands discussed in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of the WDNR, and local zoning authorities. Heartland recommends this report be submitted to local authorities, the WDNR, and USACE for final jurisdictional review and concurrence.

2.0 Methods

2.1 Wetlands

Wetlands were determined and delineated using the criteria and methods described in the USACE Wetlands Delineation Manual, T.R. Y-87-1 ("1987 Corps Manual") and the applicable *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*. In addition, the *Guidance for Submittal of Delineation Reports to the St. Paul District USACE and the WDNR* (WDNR, 2015) was followed in completing the wetland delineation and report.

Determinations and delineations utilized available resources including the U.S. Geological Survey's (USGS) *WI 7.5 Minute Series (Topographic) Map* (Figure 2, Appendix A), the Natural Resource Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO), U.S. Department of Agriculture's (USDA) *Web Soil Survey* (Figure 3, Appendix A), the Wisconsin Department of Natural Resources *Surface Water Data Viewer's* wetland indicator data layer (Figure 4, Appendix A), the WDNR's *Wisconsin Wetland Inventory* data layer (Figure 5, Appendix A), and aerial imagery available through the USDA Farm Service Agency's (FSA) National Agriculture Imagery Program (NAIP). The USGS *National Hydrography Dataset* is included on Figures 2 and 5, Appendix A.

Wetland determinations were completed on-site at sample points, often along transects, using the three (3) criteria (vegetation, soil, and hydrology) approach per the 1987 Corps Manual and the Regional Supplement. Procedures in these sources were followed to demonstrate that, under normal circumstances, wetlands were present or not present based on a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

Atypical conditions were encountered within the Study Area due to the presence of pasture and/or hay fields. Therefore, procedures for managed plant communities in the *Problematic hydrophytic vegetation* section described in Chapter 5 of the Regional Supplement were used. NAIP imagery were reviewed for evidence of crop stress, saturation, or inundation signatures. Sample point placements for the wetland delineation were partially determined based on such signatures.

Recent weather conditions influence the visibility or presence of certain wetland hydrology indicators. An assessment of recent precipitation patterns helps to determine if

climatic/hydrologic conditions were typical when the field investigation was completed. Therefore, a review of the antecedent precipitation in the three (3) months leading up to the field investigation was completed. Using a WETS analysis developed by the NRCS, the amounts of precipitation in these three (3) months were compared to averages and standard deviation thresholds over the past 30 years to generally represent if conditions encountered during the investigation were normal, wet, or dry. Recent precipitation events in the week prior to the investigation were considered while interpreting wetland hydrology indicators. In some cases, the Palmer Drought Index was checked for long-term drought or moist conditions (NOAA, 2018).

The uppermost wetland boundary and sample points were identified and marked with wetland flagging and located with a Global Positioning System (GPS) capable of sub-meter accuracy. In some cases, wetland flagging was not utilized to mark the boundary and the location was only recorded with a GPS unit, particularly in active agricultural areas. The GPS data was then used to map the wetlands using ESRI ArcMap™ 10.6 software.

3.0 Results and Discussion

3.1 Desktop Review

Climatic Conditions

According to the WETS analysis using the previous three (3) months of precipitation data, conditions encountered at the time of the fieldwork were expected to be normal for the time of year (Appendix B). The Palmer Drought Index was checked on line and the long-term conditions at the time of the fieldwork were in the extremely moist range. Fieldwork was completed outside the dry-season based on long-term regional hydrology data utilized in the WebWIMP Climatic Water Balance web site.

General Topography and Land Use

The topography within the Study Area was rolling, with various hills, depressions, and slopes present. A topographic high of approximately 1050 feet above mean sea level (msl) is present at the top of a hill near the center of the Study Area. A topographic low of approximately 985 feet above msl is present within areas determined to be wetlands along the northern, eastern, and western boundaries of the Study Area (Figures 2 and 6,

Appendix A). Land uses within the Study Area are primarily grazed pasture and a pine plantation. Surrounding areas are primarily agricultural row cropping and pasture, with residential, woodland, and wetland areas also present. General drainage is to the north and east within the northern half of the Study Area and to the west in the southern half of the Study Area.

Soil Mapping

Soils mapped by the NRCS Soil Survey within the Study Area and their hydric status are summarized in Table 1. Wetlands identified during the field investigation are located within areas mapped as predominantly hydric, predominantly non-hydric, and non-hydric soils, including wetland indicator soils (Figures 3 and 4, Appendix A).

Table 1. Summary of NRCS Mapped Soils within the Study Area

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
HmB: Hochheim loam, 2 to 6 percent slopes	Hochheim	85-92	Drumlins	No
	Theresa	5-8	Drumlins	No
	Lamartine	3-7	Drumlins	No
HmB2: Hochheim loam, 2 to 6 percent slopes, eroded	Hochheim-Eroded	80-91	Drumlins	No
	Theresa-Eroded	6-12	Till plains	No
	Lamartine	3-8	Drumlins	No
HmC2: Hochheim loam, 6 to 12 percent slopes, eroded	Hochheim-Eroded	85-92	Drumlins	No
	Theresa	4-8	Drumlins	No
	Hochheim	4-7	Drumlins	No
HmD2: Hochheim loam, 12 to 20 percent slopes, eroded	Hochheim-Eroded	80-91	Drumlins	No
	Theresa	6-12	Drumlins	No
	Hochheim	3-8	Drumlins	No
HoD3: Hochheim soils, 12 to 20 percent slopes, severely eroded	Hochheim	100	Ground moraines,drumlins	No
KlA: Kendall silt loam, 1 to 3 percent slopes	Kendall	90	Ground moraines	No

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
	Pella soils		Depressions	Yes
LmB: Lamartine silt loam, 0 to 3 percent slopes	Lamartine	80-91	Interdrumlins	No
	Pella	6-11	Drainageways	Yes
	Ossian	3-9	Depressions	Yes
Ph: Pella silt loam, 0 to 2 percent slopes	Pella	80-91	Drainageways	Yes
	Kendall	5-9	Drainageways	No
	Lamartine	4-8	Drainageways	No
	Palms-Muck	1-3	Depressions	Yes
RkB: Ritchey silt loam, 1 to 6 percent slopes	Ritchey	100	Ground moraines	No
ThB: Theresa silt loam, 2 to 6 percent slopes	Theresa	80-92	Drumlins	No
	Hochheim	5-14	Drumlins	No
	Lamartine	3-6	Drumlins	No

Wetland Mapping

The Wisconsin Wetlands Inventory (WWI) mapping (Figure 5, Appendix A) depicts two (2) wetland areas within the Study Area. One (1) broadleaf deciduous forested (T3K) wetland in the northwestern corner of the southern half of the Study Area, and one (1) shrub/scrub emergent/wet meadow wetland along the northern edge of the Study Area are identified.

Aerial Photography

Due to a lack of mapped hydric soils within areas of pasture and/or hay fields, a formal off-site analysis was not completed; however, available NAIP imagery from 2005 through 2018 were reviewed to assist in understanding the recent history of the Study Area and to evaluate for general presence of wetland signatures. This imagery showed a consistent use of pasturing and/or hay harvesting within the Study Area. The imagery also revealed consistent wetland signatures in the location of the field delineated wetland W-3, but consistent wetland signatures were not observed in any other locations.

3.2 Field Review

Four (4) wetlands were identified and delineated within the Study Area. Wetland determination data sheets (Appendix C) were completed at 13 sample points that were representative of the wetland and upland conditions near the boundary and where potential wetlands may be present based on the desktop review and field reconnaissance. Appendix D provides photographs, typically at the sample point locations of the wetlands and adjacent uplands. The wetland boundary and sample point locations are shown on Figure 6 (Appendix A) and the wetlands are summarized in Table 2 and detailed in the following sections.

Table 2. Summary of Wetlands Identified within the Study Area

Wetland ID	Wetland Description	*Surface Water Connections	*NR151 Protective Area	Acreage (on-site)
W-1	Grazed Sedge Meadow / Hardwood Swamp / Drainage Channel	Contiguous to an unnamed tributary of Brandy Brook	Moderately susceptible, 50 feet	1.72
W-2	Wet Meadow swale	Contiguous to an unnamed tributary of Brandy Brook	Less susceptible, 10-30 feet	0.08
W-3	Grazed Sedge Meadow	Drains off-site, Potentially isolated	Moderately susceptible, 50 feet	1.34
W-4	Shrub Carr / Mesic Woodland	Contiguous to an unnamed tributary of Pebble Creek	Moderately susceptible, 50 feet	1.29
*Classification based on Heartland's professional opinion. Jurisdictional authority of wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities may have additional restrictions. USACE has authority for determining federal jurisdiction of wetlands and waterways.				**4.43**

Wetlands 1 (W-1 and W-2)

Wetland 1 (W-1) is a 1.72-acre complex of grazed sedge meadow and hardwood swamp located along an unnamed tributary of Brandy Brook. This wetland is partially located within a pine plantation in the southwestern portion of the Study Area.

Wetland 2 (W-2) is a 0.08-acre wet meadow swale that barely extends into the western boundary of the Study Area. W-2 is contiguous with W-1 but separated by a culvert running underneath a gravel driveway.

Dominant vegetation observed in W-1 included jewelweed (*Impatiens capensis,* FACW), awl-fruited sedge (*Carex stipata,* OBL), devil's beggarstick (*Bidens frondosa,* FACW), fox sedge (*Carex vulpinoidea,* OBL), buckthorn (*Rhamnus cathartica,* FAC), black elder (*Sambucus nigra,* FACW), box elder (*Acer negundo,* FAC), honeysuckle (*Lonicera x bella,* FACU), eastern white pine (*Pinus strobus,* FACU), American elm (*Ulmus Americana,* FACW), cottonwood (*Populus deltoides,* FAC) and silver maple (*Acer saccharinum,* FACW)

Redox Dark Surface (F6) and Depleted Matrix (F3) hydric soil indicators were noted in W-1, which is consistent with the NRCS-mapped Pella silt loam, and drainageway components of the NRCS-mapped Lamartine silt loam.

The primary wetland hydrology indicators of Surface Water (A1), High Water Table (A2), Saturation (A3), and Drift Deposits (B3) were observed within W-1. Secondary indicators included Drainage Patterns (B10), Geomorphic Position (D2), and a positive FAC-Neutral Test (D5).

Wetland W-1 is contiguous with an unnamed tributary of Brandy Brook. The boundary of W-1 generally followed a moderately-defined topographic break and featured hydrophytic vegetation not present in the adjacent uplands.

Wetland 3 (W-3)

Wetland W-3 is a 1.34-acre, potentially isolated, grazed sedge meadow located within low eleveation portions of the pasture making up the northern half of the Study Area. The wetland drains off-site to the east, but does not appear to connect to a surface water.

Dominant vegetation observed in W-2 included tussock sedge (*Carex stricta,* OBL), reed canary grass (*Phalaris arundinacea,* FACW), limestone meadow sedge (*Carex granularis,* FACW), red fescue (*Festuca rubra,* FACU), curly dock (*Rumex crispus,* FAC), awl-fruited sedge (*Carex stipata,* OBL), and fox sedge (*Carex vulpinoidea,* OBL).

Depleted Below Dark Surface (A11) and Redox Dark Surface (F6) hydric soil indicators were noted in W-3, which is inconsistent with the NRCS-mapped Hochheim loam soil type.

Primary wetland hydrology indicators noted in W-3 included High Water Table (A2) and Saturation (A3), while secondary indicators included Geomorphic Position (D2), and a positive FAC-Neutral Test (D5).

The boundary of W-3 followed a moderately defined topographic break and featured a transition from hydrophytic sedge meadow vegetation to non-hydrophytic upland pasture vegetation within the adjacent uplands.

Wetland 4 (W-4)

Wetland W-4 is a 1.29-acre complex of shrub carr and mesic woodland that extends within the northern boundary of the Study Area. The remainder of this wetland complex extends offsite to the north.

Dominant vegetation observed in W-4 included reed canary grass, Kentucky bluegrass (*Poa pratensis,* FACU), limestone meadow sedge, pinkweed (*Persicaria pensylvanica,* FACW), red fescue, fowl manna grass (*Glyceria striata,* OBL), green ash (*Fraxinus pennsylvanica,* FACW), multiflora rose (*Rosa multiflora,* FACU), honeysuckle (*Lonicera x bella,* FACU), and cracked willow (*Salix x fragilis,* FAC).

Depleted Below Dark Surface (A11) and Depleted Matrix (F3) hydric soil indicators were noted in W-4, which is consistent with depressional areas of the NRCS-mapped Lamartine silt loam soil type.

The primary wetland hydrology indicator of Saturation (A3) was noted in W-4. Secondary indicators of wetland hydrology included Geomorphic Position (D2) and a positive FAC-Neutral Test (D5).

The boundary of W-4 followed moderately-defined topographic break and featured a change in shrub carr / mesic woodland hydrophytic vegetation within the wetlands and upland pasture vegetation outside of the wetlands.

3.3 Other Considerations

This report is limited to the identification and delineation of wetlands within the Study Area. Other regulated environmental resources that result in land use restrictions may be present within the Study Area that were not evaluated by Heartland (e.g. navigable waterways, floodplains, cultural resources, and threatened or endangered species).

Wisconsin Act 183 provides exemptions to permitting requirements for certain nonfederal wetlands. Nonfederal wetlands are wetlands that are not subject to federal jurisdiction. Exemptions apply to projects in urban areas with wetland impacts up to 1-acre per parcel. An urban area is defined as an incorporated area; an area within ½ mile of an incorporated area; or an area served by a sewerage system. Exemptions for nonfederal wetlands also apply to projects in rural areas with wetland impacts up to three (3) acres per parcel. Exemptions in rural areas only apply to structures with an agricultural purpose such as buildings, roads, and driveways. The determination of federal and nonfederal wetlands MUST be made by the USACE through an Approved Jurisdictional Determination (AJD). This report may be submitted to the USACE to assist with their determination.

Wis. Adm. Code NR 151 ("NR 151") requires that a "protective area" (buffer) be determined from the Ordinary High-Water Mark (OHWM) of lakes, streams and rivers, or at the delineated boundary of wetlands. Per NR 151.12, the protective area width for "less susceptible" wetlands is determined by using 10% of the average wetland width, no less than 10 feet or more than 30 feet. "Moderately susceptible" wetlands, lakes, and perennial and intermittent streams identified on recent mapping require a protective area width of 50 feet; while "highly susceptible wetlands" are associated with outstanding or exceptional resource waters in areas of special natural resource interest and require protective area width of 75 feet. Table 2 above lists the potential wetland buffers per NR 151 for each wetland identified based on Heartland's professional opinion. Please note that jurisdictional authority on wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities and regional planning organizations may have additional land use restrictions within or adjacent to wetlands.

4.0 Conclusion

Heartland completed an assured wetland determination and delineation within the Downing Farm site on June 4, 2019 at the request of Belinski Homes. Fieldwork was completed by Jeff Kraemer, an assured delineator qualified via the WDNR Wetland Delineation Assurance Program. The Study Area lies in Section 31, T7N, R19E, City of Waukesha, Waukesha County, WI.

Four (4) wetland areas were delineated and mapped within the 81.31-acre Study Area. The wetlands, which may be classified as sedge meadow, wet meadow, shrub carr, mesic woodland, and hardwood swamp, total approximately 4.43 acres within the Study Area. Potential unnamed tributaries of Brandy Brook and Pebble Creek were observed within the Study Area.

Wetlands and waterways discussed in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of the WDNR, and the local zoning authority. Heartland recommends this report be submitted to the USACE for final jurisdictional review and concurrence. Review by local authorities may be necessary for determination of any applicable zoning and setback restrictions.

Heartland recommends that all applicable regulatory agency reviews and permits are obtained prior to beginning work within the Study Area or within or adjacent to wetlands or waterways. Heartland can assist with evaluating the need for additional environmental reviews, surveys, or regulatory agency coordination in consideration of the proposed activity and land use as requested but is outside of the scope of the wetland delineation.

Experienced and qualified professionals completed the wetland determination and delineation using standard practices and professional judgment. Wetland boundaries may be affected by conditions present within the Study Area at the time of the fieldwork. All final decisions on wetlands and their boundaries are made by the USACE, the WDNR, and/or sometimes a local unit of government. Wetland determination and boundary reviews by regulatory agencies may result in modifications to the findings presented to the Client. These modifications may result from varying conditions between the time the wetland

delineation was completed and the time of the review. Factors that may influence the findings may include but not limited to precipitation patterns, drainage modifications, changes or modification to vegetation, and the time of year.

5.0 References

Eggers, S. D., & D. M. Reed. (2014). *Wetland Plants and Plant Communities of Minnesota and Wisconsin* (V. 3.1). U.S. Army Corps of Engineers, Regulatory Branch, St. Paul, MN District. See: http://www.mvp.usace.army.mil/.

Environmental Laboratory (1987). *Corps of Engineers Wetlands Delineation Manual*, Tech. Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Lichvar, R.W., D. L. Banks, W. N. Kirchner, and N.C. Melvin. (2016). *The National Wetland Plant List:* 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X. See: http://www.phytoneuron.net/.

Midwestern Regional Climate Center. (2014). *cli-MATE* [climate data access tool]. See: http://mrcc.isws.illinois.edu/CLIMATE/.

National Oceanic and Atmospheric Administration (NOAA). (2015) Regional Climate Centers Applied Climate Information System. *WETS table*. See: http://agacis.rcc-acis.org.

NOAA National Center for Environmental Information. (2018) *Historic Palmer Drought Indices*. See: https://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/201512-201601.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (USDA). (2018). *Soil Survey Geographic (SSURGO) Database*. See: http://websoilsurvey.nrcs.usda.gov/ or http://datagateway.nrcs.usda.gov/.

Soil Survey Staff, Natural Resources Conservation Service, USDA. (2018). *Web Soil Survey*. See: http://websoilsurvey.nrcs.usda.gov/.

U.S. Army Corps of Engineers (USACE) and Wisconsin Department of Natural Resources (WDNR). (March 2015). *"Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources"*. See: http://dnr.wi.gov/topic/wetlands/documents/FinalWisconsinDelineationGuidance.pdf.

USACE. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0*). (2011). ed. J.S. Wakely, R.W. Lichvar, C.V. Nobel, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USACE St. Paul District & Minnesota Board of Water & Soil Resources. (July 2016). *Guidance for Offsite Hydrology/Wetland Determinations*. See: http://www.mvp.usace.army.mil/Missions/Regulatory/Delineation/.

United States Department of Agriculture (USDA), Farm Service Agency (FSA). (2005, 2006, 2008, 2010, 2013, 2015, 2017, 2018) [Waukesha County, Wisconsin aerial photographs]. National Agriculture Imagery Program (NAIP). Salt Lake City, UT: Aerial Photography Field Office.

USDA, Natural Resource Conservation Service (NRCS). (2010). *Field Indicators of Hydric Soils in the United States*, Version 8.2. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

United States Department of the Interior (USDI) Fish & Wildlife Service – Ecological Services. (2018). *National Wetland Inventory*. See: https://www.fws.gov/wetlands/.

USDI, U.S. Geological Survey (USGS). *Wisconsin 7.5 Minute Series (Topographic) Maps.* 1:24,000. Reston, VA.

USDI, USGS. National Hydrography Dataset (NHD) 24K scale data. See: https://nhd.usgs.gov/.

Wetland Training Institute, Inc (WTI). (2010*). Pocket guide to hydric soil field indicators.* (Robert J. Pierce, Ed.). (7th ed.). Glenwood, NM: Wetland Training Institute, Inc.

Willmott, C.J. and K. Matsuura. (2016). *Web-Based Water-Budget Interactive Modeling Program (WebWIMP).* University of Delaware Department of Geography. Newark, DE. See: climate.geog.udel.edu/~wimp/.

WDNR, Surface Water Data Viewer Interactive Web-mapping Tool. (2018). See: https://dnr.wi.gov/topic/surfacewater/swdv/.

WDNR, Division of Water. (2010). [24k hydrography geospatial data layer]. See: ftp://dnrftp01.wi.gov/geodata/hydro_24k/.

Woodward, D.E. ed. (1997). *Hydrology Tools for Wetland Determination*, WETS Analysis, Chapter 19. Engineering Field Handbook. USDA, NRCS, Fort Worth, TX.

Belinski Homes
Downing Farm
Project #: 20190195
July 26, 2019

Appendix A | Figures

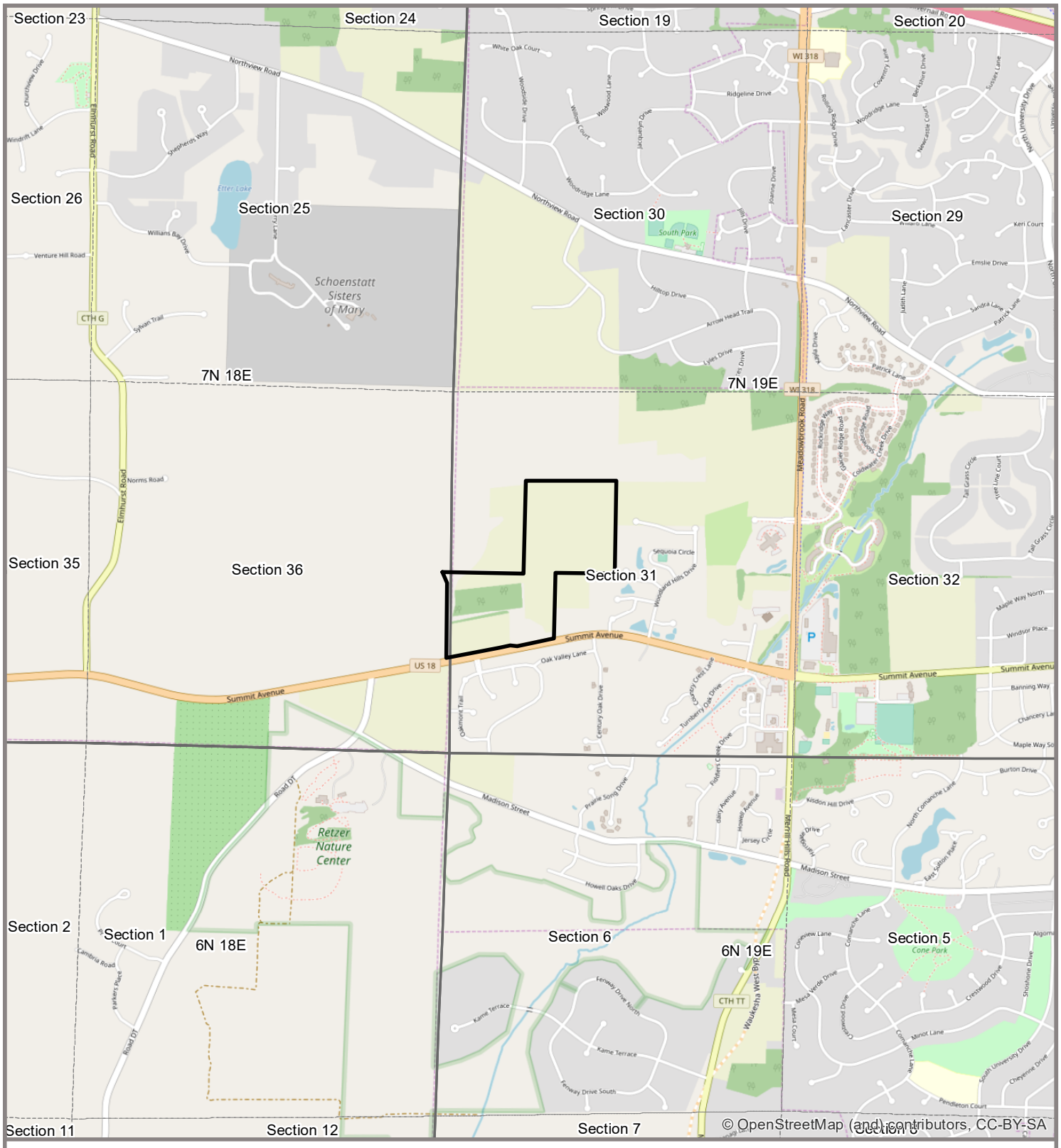

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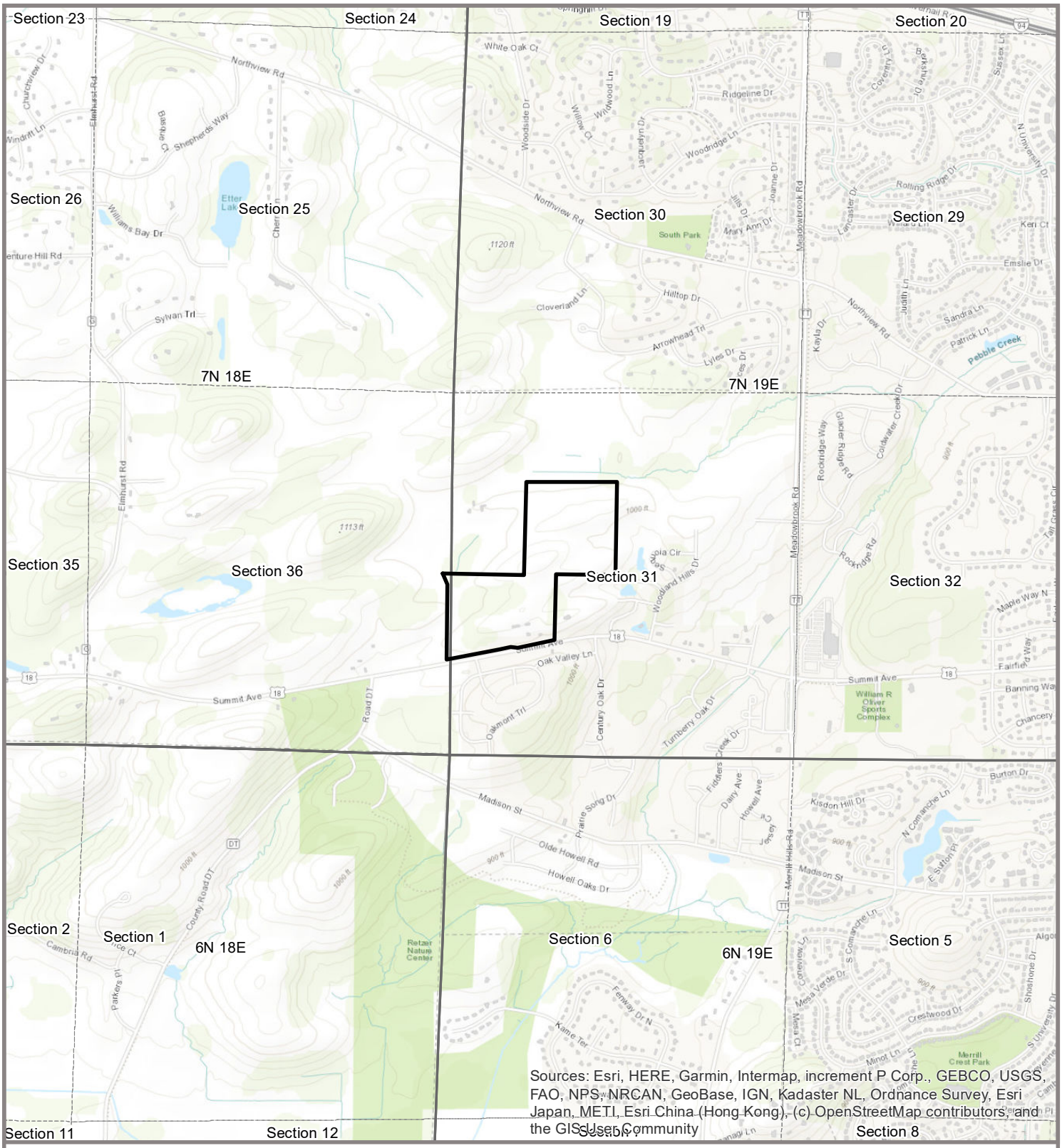
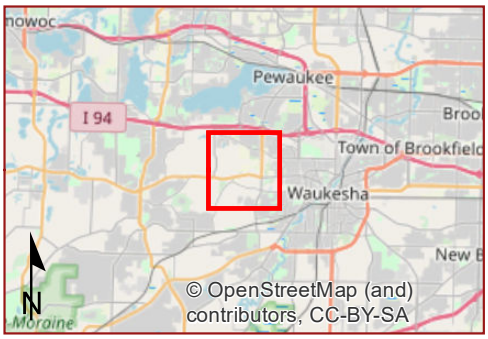
Figure 1. Project Location

Downing Farm
Project #20190195
T7N, R19E, S31
C Waukesha,
Waukesha Co, WI

OpenStreetMap
Data: HEG 5/31/2019





Study Area (81.31 ac)

PLSS Township

PLSS Section

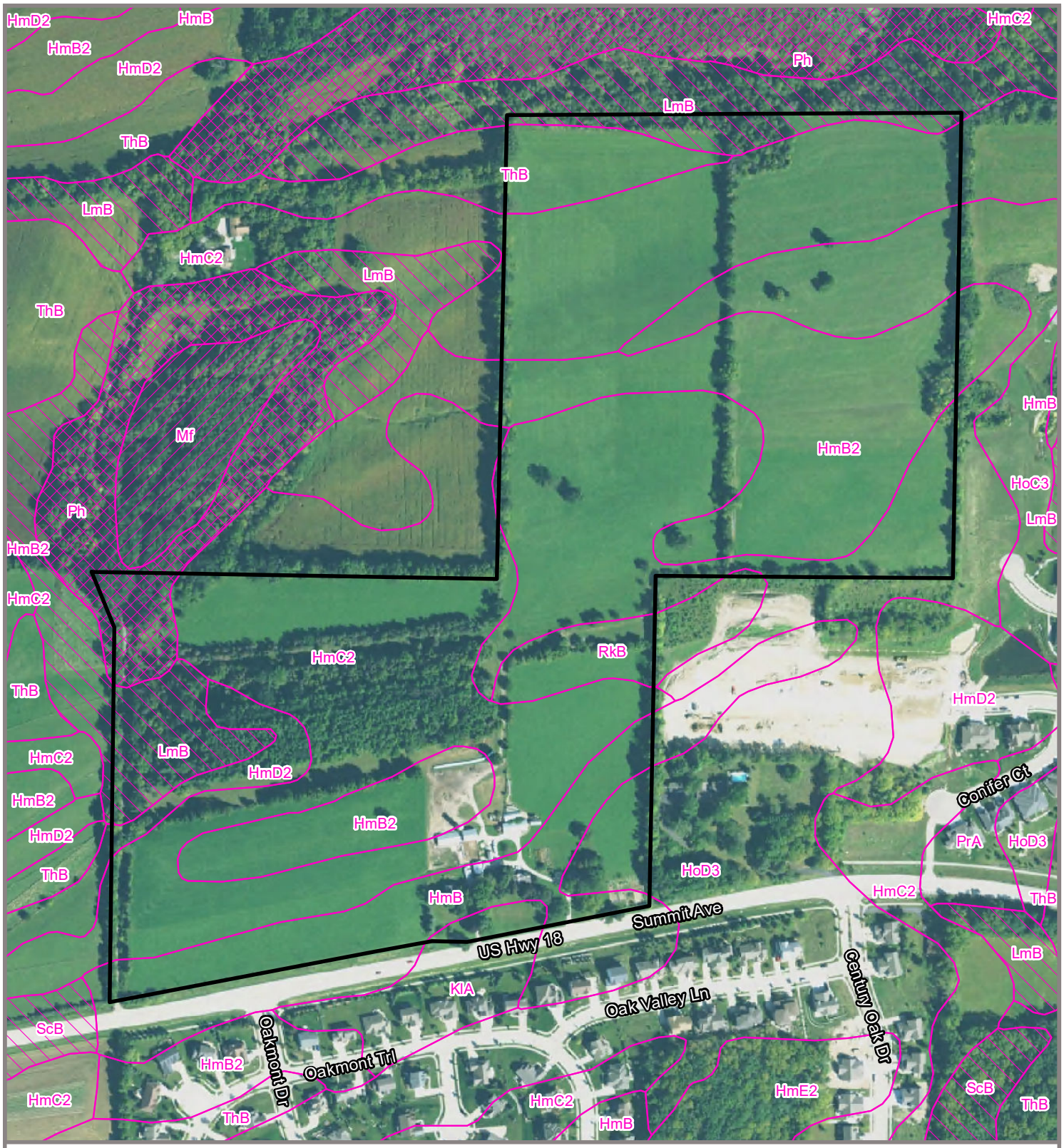
0 1,000 2,000 Ft

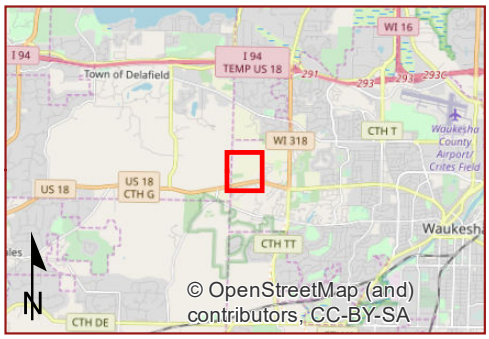
Heartland ECOLOGICAL GROUP INC

Figure 2. ESRI Topography

Downing Farm
Project #20190195
T7N, R19E, S31
C Waukesha,
Waukesha Co, WI

ESRITopo
Data: ESRI, HEG *5/31/2019*





Study Area (81.31 ac)

0 200 400 Ft

NRCS Soil Survey Data

- Predominantly Hydric (85-100%)
- Partially Hydric (15-84%)
- Predominantly Non-Hydric (1-14%)
- Non-Hydric (0%)

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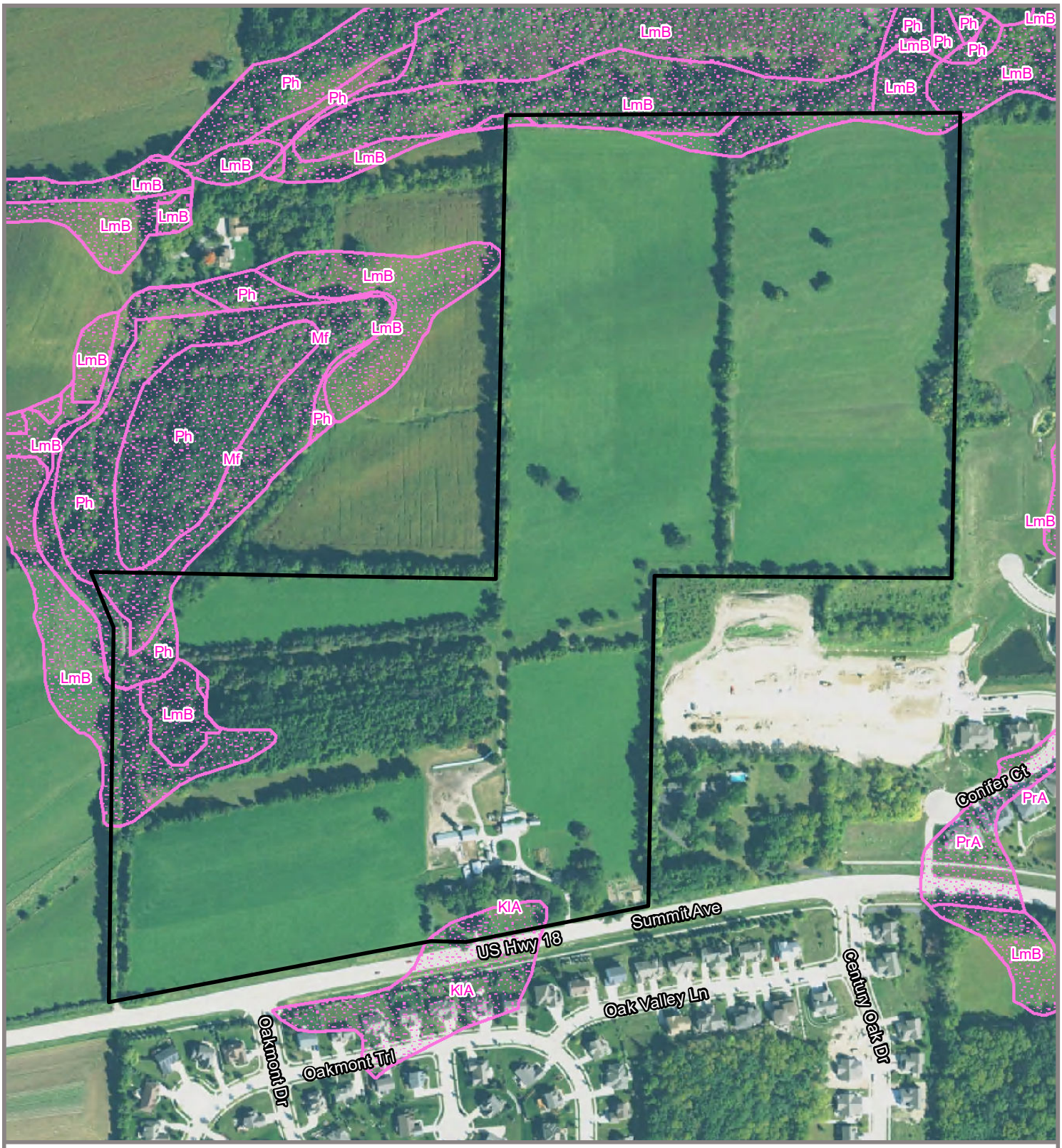
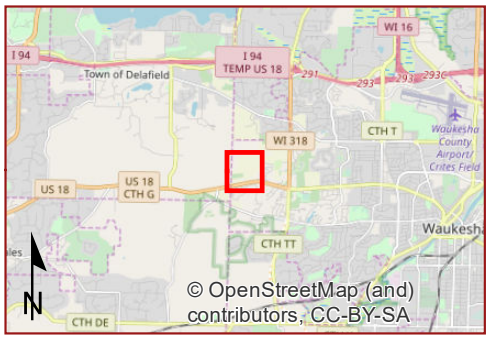
ECOLOGICAL GROUP INC

Figure 3. NRCS Hydric Soils

Downing Farm
Project #20190195
T7N, R19E, S31
C Waukesha,
Waukesha Co, WI

NAIP Year 2018
Data: NRCS, HEG 5/31/2019





Study Area (81.31 ac)

Maximum Extent Wetland Indicators

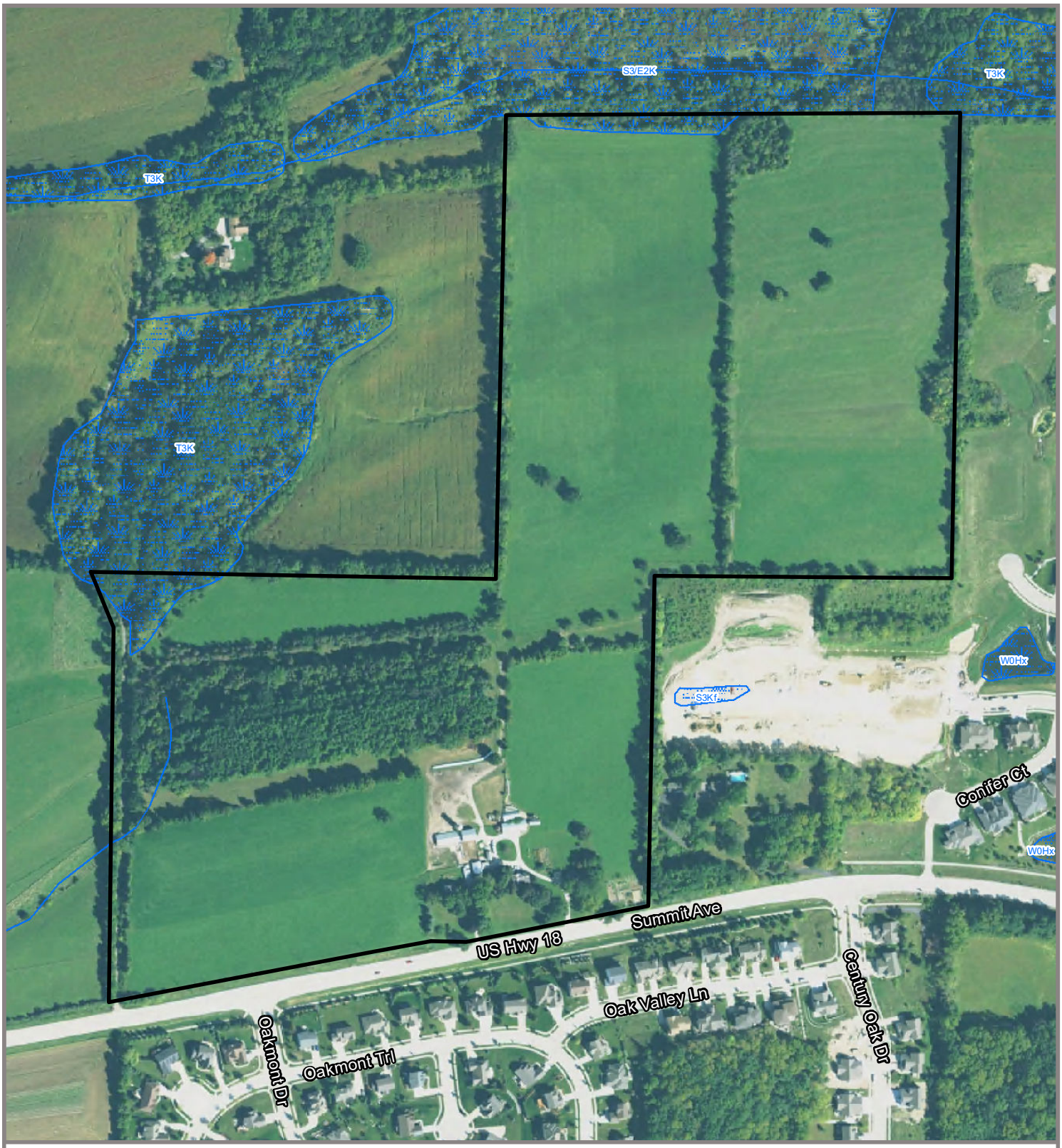
0 200 400 Ft

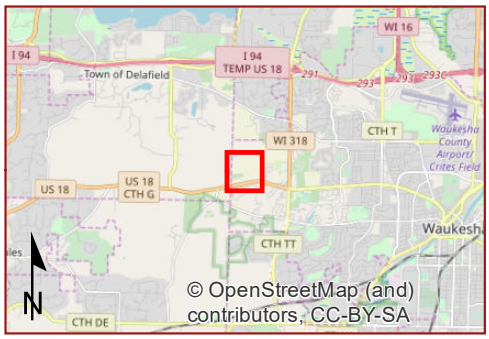
Heartland
ECOLOGICAL GROUP INC

Figure 4. SWDV Wetland Indicators

Downing Farm
Project #20190195
T7N, R19E, S31
C Waukesha,
Waukesha Co, WI

NAIP Year 2018
Data: WDNR, HEG 5/31/2019





Study Area (81.31 ac)

WWI Wetlands

NHD Waterway

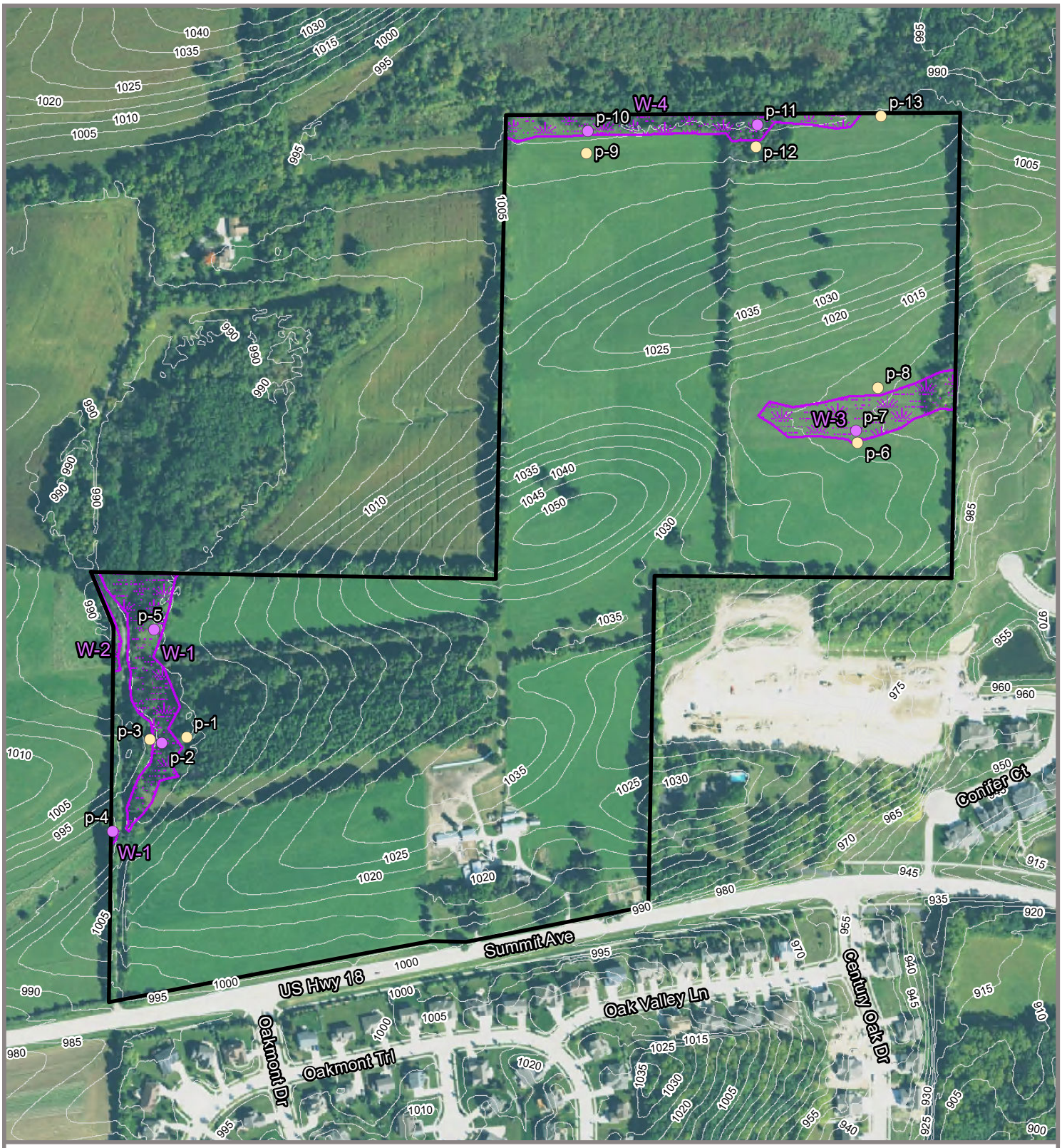
0 200 400 Ft

Heartland ECOLOGICAL GROUP INC

Figure 5. Wisconsin Wetland Inventory

Downing Farm
Project #20190195
T7N, R19E, S31
C Waukesha,
Waukesha Co, WI

NAIP Year 2018
Data: WDNR, HEG *5/31/2019*


W-4
p-10
p-11
p-13
p-9
p-12
p-8
W-3
p-7
p-6
p-5
W-2
W-1
p-3
p-1
p-2
p-4
W-1
Summit Ave
US Hwy 18
Oak Valley Ln
Oakmont Dr
Oakmont Trl
Century Oak Dr
Conifer Ct
Town of Delafield
WI 16
I 94
I 94
TEMP US 18
WI 318
CTH T
US 18
US 18
CTH G
CTH TT
CTH DE
Waukesha County Airport/ Crites Field
Waukesha
N
© OpenStreetMap (and) contributors, CC-BY-SA
Study Area (81.31 ac)
Waukesha Co. 5' Contours
Field Delineated Wetlands (4.43 ac)
0
200
400
Ft
Sample points
Upland
Wetland
Heartland
ECOLOGICAL GROUP INC
Figure 6. Field Delineated Wetlands
Downing Farm
Project #20190195
T7N, R19E, S31
C Waukesha,
Waukesha Co, WI
NAIP Year 2018
Data: Waukesha Co, HEG 6/5/2019

Belinski Homes
Downing Farm
Project #: 20190195
July 26, 2019

Appendix B | WETS Analysis

WETS Analysis Worksheet

Project Name: Downing Farm
Project Number: 20190195
Period of interest: March - May 2019
Station: Occonomowoc, WI
County: Waukesha

Long-term rainfall records (from WETS table)

	Month	3 years in 10 less than	Normal	3 years in 10 greater than
1st month prior:	May	2.46	3.65	4.37
2nd month prior:	April	2.62	3.55	4.17
3rd month prior:	March	1.26	2.05	2.48
		Sum =	**9.25**	

Site determination

	Site Rainfall (in)	Condition Dry/Normal*/Wet	Condition** Value	Month Weight	Product
	4.36	Normal	2	3	6
	3.77	Normal	2	2	4
	0.98	Dry	1	1	1
Sum =	**9.11**			Sum*** =	**11**

***Normal precipitation with 30% to 70% probability of occurrence**

Determination:

	Wet
	Dry
X	Normal

****Condition value:**

Dry =	1
Normal =	2
Wet =	3

*****If sum is:**

6 to 9	then period has been drier than normal
10 to 14	then period has been normal
15 to 18	then period has been wetter than normal

Precipitation data source: Midwest Regional Climate Center, cli-MATE: MRCC Application Tools Environment

Reference: Donald E. Woodward, ed. 1997. *Hydrology Tools for Wetland Determination* , Chapter 19. Engineering Field Handbook. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, TX.

Belinski Homes
Downing Farm
Project #: 20190195
July 26, 2019

Appendix C | Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P1

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 5

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within an upland portion of a pine plantation near the western limits of the study 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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P1

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus strobus*	70	Yes	FACU
2. *Acer negundo*	10	No	FAC
3. *Ulmus americana*	5	No	FACW
4.			
5.			
6.			
7.			
	85	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Lonicera X bella*	35	Yes	FACU
2. *Sambucus nigra*	10	No	FACW
3. *Rhamnus cathartica*	8	No	FAC
4.			
5.			
6.			
7.			
	53	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Viola sororia*	50	Yes	FAC
2. *Schedonorus pratensis*	30	Yes	FACU
3. *Alliaria petiolata*	15	No	FACU
4. *Impatiens capensis*	10	No	FACW
5. *Taraxacum officinale*	3	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	108	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	68	x 3 =	204
FACU species	153	x 4 =	612
UPL species	0	x 5 =	0
Column Totals:	246 (A)		866 (B)

Prevalence Index = B/A = 3.52

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.)
No woody vines observed.

SOIL

Sampling Point P1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 3/2	100					Loamy/Clayey	SiL
4 - 18	10YR 5/4	100					Loamy/Clayey	SiL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P2

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Drainageway Margins Local relief (concave, convex, none): Concave Slope %: 1

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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 No X

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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within a wetland portion of a pine plantation near the western limits of the study area - not normal circumstances, vegetation (tree stratum) disturbed due to historic clearing and planting of lumber pine species. This area consists of mesic woodlands associated with a drainageway; however, the tree stratum is dominated by planted white pines.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- 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)
- 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 X	No	Depth (inches): 4
Water Table Present?	Yes X	No	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 8

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

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

Remarks:
Drainageway is 5-8 feet wide with 4-8 inches of water. Little flow, water is near the OHWM. Sample point recorded approximately 6 feet from the drainageway.

VEGETATION – Use scientific names of plants. Sampling Point: P2

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus strobus*	30	Yes	FACU
2. *Ulmus americana*	15	Yes	FACW
3. *Quercus macrocarpa*	10	No	FACU
4. *Acer negundo*	5	No	FAC
5.			
6.			
7.			
	60	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Rhamnus cathartica*	8	Yes	FAC
2. *Sambucus nigra*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	13	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Impatiens capensis*	50	Yes	FACW
2. *Carex stipata*	20	Yes	OBL
3. *Pilea pumila*	5	No	FACW
4. *Alliaria petiolata*	5	No	FACU
5. *Bidens frondosa*	5	No	FACW
6. *Taraxacum officinale*	2	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	87	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	80	x 2 =	160
FAC species	13	x 3 =	39
FACU species	47	x 4 =	188
UPL species	0	x 5 =	0
Column Totals:	160 (A)		407 (B)

Prevalence Index = B/A = 2.54

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.)
No woody vines observed. Vegetation consists primarily of mesic forest / lowland forest species; however, the tree stratum is dominated by planted white pine.

SOIL

Sampling Point P2

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 - 14	10YR 3/1	62	10YR 4/2	30	D	M	Loamy/Clayey	SiCL
			10YR 5/6	8	C	M		

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ 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:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P3

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 7

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within upland woodlands west of the drainageway and P2.

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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P3

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celtis occidentalis*	50	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	50	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Lonicera X bella*	60	Yes	FACU
2. *Rhamnus cathartica*	10	No	FAC
3.			
4.			
5.			
6.			
7.			
	70	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Alliaria petiolata*	65	Yes	FACU
2. *Rhamnus cathartica*	15	No	FAC
3. *Viola sororia*	10	No	FAC
4. *Rosa multiflora*	10	No	FACU
5. *Arctium minus*	10	No	FACU
6. *Taraxacum officinale*	3	No	FACU
7. *Impatiens capensis*	3	No	FACW
8.			
9.			
10.			
11.			
12.			
	116	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
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	3	x 2 =	6
FAC species	85	x 3 =	255
FACU species	148	x 4 =	592
UPL species	0	x 5 =	0
Column Totals:	236 (A)		853 (B)

Prevalence Index = B/A = 3.61

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.)
No woody vines observed.

SOIL

Sampling Point P3

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 - 3	10YR 3/2	100					Loamy/Clayey	SiCL
3 - 12	10YR 3/4	100					Loamy/Clayey	SiCL
12 - 18	10YR 4/4	100					Loamy/Clayey	SiCL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P4

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope %: 0 - 2

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded at the eastern end of a swale that is connected to the remainder of W-1 via a culvert under a driveway. This swale barely extends into the study area, but continues offsite to the west.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X 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)
- ___ 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): 18
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 10

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: P4

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	60	Yes	FAC
2. *Carya ovata*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
	70	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Rhamnus cathartica*	20	Yes	FAC
2. *Acer negundo*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	30	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Impatiens capensis*	15	Yes	FACW
2. *Bidens frondosa*	8	Yes	FACW
3. *Glyceria striata*	5	No	OBL
4. *Alliaria petiolata*	3	No	FACU
5. *Geum canadense*	2	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	33	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (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	5	x 1 =	5
FACW species	23	x 2 =	46
FAC species	92	x 3 =	276
FACU species	13	x 4 =	52
UPL species	0	x 5 =	0
Column Totals:	133 (A)		379 (B)

Prevalence Index = B/A = 2.85

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.)
No woody vines observed.

SOIL

Sampling Point P4

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 - 18	10YR 4/2	75	10YR 5/6	10	C	M	Loamy/Clayey	SiCL (w/15% pebbles)
	10YR 3/2	15						

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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)
- X 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 (F22)
- ___ 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:

Mixed sediment deposits.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P5

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 0 - 3

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Pella silt loam (Ph) NWI classification: T3K

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	No	**within a Wetland?** **Yes** **No** X
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within a grazed sedge meadow, that transitions into a hardwood swamp, near the northwestern corner of the of the southern half of the study area.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes X	No	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 0

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: P5

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	20	Yes	FAC
2. *Acer saccharinum*	10	Yes	FACW
3. *Acer negundo*	3	No	FAC
4.			
5.			
6.			
7.			
	33	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Lonicera X bella*	5	Yes	FACU
2. *Rhamnus cathartica*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Carex stipata*	30	Yes	OBL
2. *Carex vulpinoidea*	30	Yes	OBL
3. *Phalaris arundinacea*	10	No	FACW
4. *Impatiens capensis*	10	No	FACW
5. *Alisma triviale*	5	No	OBL
6. *Poa pratensis*	5	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	30	x 2 =	60
FAC species	28	x 3 =	84
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	133 (A)		249 (B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide 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.)
No woody vines observed. This area consist of a sedge meadow that transitions into a hardwood swamp in the surrounding areas.

SOIL

Sampling Point P5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ 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** ____

Remarks:

No information on soils at this location.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P6

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 3 - 5

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Hochheim loam (HmB2) NWI classification: N/A

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

Are Vegetation X, 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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within an upland pasture.

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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P6

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Poa pratensis*	50	Yes	FACU
2. *Phleum pratense*	10	No	FACU
3. *Dactylis glomerata*	10	No	FACU
4. *Bromus inermis*	10	No	UPL
5. *Trifolium hybridum*	5	No	FACU
6. *Plantago major*	5	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
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: 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	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	10	x 5 =	50
Column Totals:	90 (A)		370 (B)

Prevalence Index = B/A = 4.11

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.)
No trees, shrubs, or woody vines observed. Vegetation consists of upland grasses. This area is a managed pasture.

SOIL

Sampling Point P6

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 - 6	10YR 3/3	97	10YR 4/6	3	C	M	Loamy/Clayey	SiL
6 - 18	10YR 5/4	85					Loamy/Clayey	SiCL
	10YR 4/2	15						

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P7

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 1 - 3

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Hochheim loam (HmB2) NWI classification: N/A

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

Are Vegetation X, 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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within a grazed sedge meadow present near the eastern edge of the study area. This area is saturated throughout with pockets of inundation in some areas. This area drains offsite into an eroded gully.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- 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)
- X 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): 3
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 0

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: P7

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Carex stricta*	20	Yes	OBL
2. *Phalaris arundinacea*	10	Yes	FACW
3. *Carex granularis*	10	Yes	FACW
4. *Festuca rubra*	10	Yes	FACU
5. *Rumex crispus*	10	Yes	FAC
6. *Carex stipata*	15	Yes	OBL
7. *Carex vulpinoidea*	10	Yes	OBL
8. *Schoenoplectus tabernaemontani*	5	No	OBL
9.			
10.			
11.			
12.			
	90 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		160 (B)

Prevalence Index = B/A = 1.78

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.)
No trees, shrubs, or woody vines observed. Vegetation in this area consists of a grazed sedge meadow dominated by various Carex species.

SOIL

Sampling Point P7

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	10YR 3/1	85	10YR 5/6	15	C	M	Loamy/Clayey	SiCL
12 - 18	10YR 5/1	80	10YR 5/6	20	C	M	Loamy/Clayey	SiCL

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X 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 (F22)
- ___ 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:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P8

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 3 - 5

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Hochheim loam (HmB2) NWI classification: N/A

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

Are Vegetation X, 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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within an upland area of a grazed pasture.

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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P8

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Poa pratensis*	50	Yes	FACU
2. *Trifolium repens*	20	Yes	FACU
3. *Festuca rubra*	15	No	FACU
4. *Carex granularis*	10	No	FACW
5. *Trifolium hybridum*	10	No	FACU
6. *Dactylis glomerata*	10	No	FACU
7. *Plantago major*	5	No	FACU
8. *Taraxacum officinale*	5	No	FACU
9.			
10.			
11.			
12.			
	125 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
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: 2 (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	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	125 (A)		480 (B)

Prevalence Index = B/A = 3.84

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.)
No trees, shrubs, or woody vines observed. Vegetation consists of upland pasture.

SOIL

Sampling Point P8

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 - 6	10YR 3/2	100					Loamy/Clayey	SiCL
6 - 12	2.5Y 3/3	99	10YR 4/6	1	C	M	Loamy/Clayey	SiCL
12 - 18	10YR 5/4	100					Loamy/Clayey	SiCL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P9

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 3 - 5

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Theresa silt loam (ThB) NWI classification: N/A

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

Are Vegetation X, 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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within an upland pasture near the northern edge of the study 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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P9

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Festuca rubra*	65	Yes	FACU
2. *Dactylis glomerata*	20	No	FACU
3. *Poa pratensis*	15	No	FACU
4. *Trifolium pratense*	5	No	FACU
5. *Taraxacum officinale*	3	No	FACU
6. *Daucus carota*	3	No	UPL
7. *Medicago sativa*	3	No	UPL
8.			
9.			
10.			
11.			
12.			
	114	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
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: 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	0	x 3 =	0
FACU species	108	x 4 =	432
UPL species	6	x 5 =	30
Column Totals:	114 (A)		462 (B)

Prevalence Index = B/A = 4.05

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.)
No trees, shrubs, or woody vines observed. This area is an upland pasture that has not recently been grazed.

SOIL

Sampling Point P9

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 - 13	2.5Y 3/3	100					Loamy/Clayey	SiCL
13 - 18	10YR 5/4	100					Loamy/Clayey	SiCL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P10

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope %: 1

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: S3/E2K

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	No X	**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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within a shrub carr at the toe of slope and border edge of the pasture. This soil does not actually meet a hydric soil indicator despite the 16+ soil layer being depleted - surface layer has a chroma of 2 disqualifying it from meeting A12.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes X	No	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 10

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: P10

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	20	Yes	FACW
2. *Acer negundo*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Salix interior*	20	Yes	FACW
2. *Cornus alba*	12	Yes	FACW
3. *Acer negundo*	5	No	FAC
4.			
5.			
6.			
7.			
	37	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Phalaris arundinacea*	70	Yes	FACW
2. *Mimulus ringens*	5	No	OBL
3. *Poa pratensis*	5	No	FACU
4. *Solidago gigantea*	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (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	5	x 1 =	5
FACW species	127	x 2 =	254
FAC species	10	x 3 =	30
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	147 (A)		309 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide 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.)
No woody vines. Shrub carr present in this area, transitioning to hardwood swamp further north.

SOIL

Sampling Point P10

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 - 13	10YR 2/2	97	10YR 5/6	3	C	M	Loamy/Clayey	SiCL
13 - 16	10YR 2/1	100					Loamy/Clayey	SiCL
16 - 24	10YR 5/1	88	10YR 5/6	12	C	M	Loamy/Clayey	SiCL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ 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 soil does not actually meet any hydric soil indicators. The surface layer with a chroma of 2 disqualifies it from meeting the A12 indicator. Based on landscape position, vegetation, hydrology, and somewhat poorly drained soils, a positive wetland determination was made.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P11

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Toe of Slope Local relief (concave, convex, none): Concave Slope %: 1 - 3

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within a grazed mesic woodland along the northern boundary of the study 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 20
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 16

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

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

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: P11

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix X fragilis*	50	Yes	FAC
2. *Fraxinus pennsylvanica*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Fraxinus pennsylvanica*	10	Yes	FACW
2. *Rosa multiflora*	5	Yes	FACU
3. *Lonicera X bella*	5	Yes	FACU
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Poa pratensis*	20	Yes	FACU
2. *Carex granularis*	10	Yes	FACW
3. *Persicaria pensylvanica*	10	Yes	FACW
4. *Festuca rubra*	10	Yes	FACU
5. *Glyceria striata*	10	Yes	OBL
6. *Geum canadense*	8	No	FAC
7. *Erigeron annuus*	3	No	FACU
8. *Schoenoplectus tabernaemontani*	2	No	OBL
9. *Trifolium pratense*	2	No	FACU
10. *Viola sororia*	2	No	FAC
11. *Cirsium arvense*	2	No	FACU
12.			
	79	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	12	x 1 =	12
FACW species	60	x 2 =	120
FAC species	60	x 3 =	180
FACU species	47	x 4 =	188
UPL species	0	x 5 =	0
Column Totals:	179 (A)		500 (B)

Prevalence Index = B/A = 2.79

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.)
No woody vines observed, this area is a mesic woodland

SOIL

Sampling Point P11

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 - 3	10YR 3/2	97	10YR 4/6	3	C	M	Loamy/Clayey	SiCL
3 - 16	10YR 4/2	92	10YR 5/6	8	C	M	Loamy/Clayey	SiCL
16 - 20	10YR 5/1	88	10YR 5/6	12	C	M	Loamy/Clayey	SiCL

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

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X 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)
- X 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 (F22)
- ___ 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:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P12

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 3 - 5

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within an upland grazed wood lot near the northern boundary of the study 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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P12

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	50	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	50	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. *Lonicera X bella*	10	Yes	FACU
2. *Rosa multiflora*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Schedonorus pratensis*	70	Yes	FACU
2. *Poa pratensis*	10	No	FACU
3. *Viola sororia*	10	No	FAC
4. *Alliaria petiolata*	8	No	FACU
5. *Dactylis glomerata*	5	No	FACU
6. *Solidago canadensis*	3	No	FACU
7. *Cirsium vulgare*	2	No	FACU
8. *Geum canadense*	2	No	FAC
9. *Circaea canadensis*	1	No	FACU
10.			
11.			
12.			
	111	=Total Cover	
Woody Vine Stratum (Plot size: 30ft)			
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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	12	x 3 =	36
FACU species	114	x 4 =	456
UPL species	0	x 5 =	0
Column Totals:	176 (A)		592 (B)

Prevalence Index = B/A = 3.36

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.)
An additional approximately 20% cover worth of dead ash trees are present. No woody vines observed. Upland woodlot.

SOIL

Sampling Point P12

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 - 11	10YR 3/3	100					Loamy/Clayey	SiCL
11 - 18	10YR 5/4	100					Loamy/Clayey	SiCL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Downing Farm City/County: C Waukesha/Waukesha Co Sampling Date: 6/4/2019

Applicant/Owner: John Donovan, Belinski Homes State: WI Sampling Point: P13

Investigator(s): Jeff Kraemer, Heartland Ecological Group Section, Township, Range: T7N, R19E, S21

Landform (hillside, terrace, etc.): Sideslope Local relief (concave, convex, none): None Slope %: 3 - 5

Subregion (LRR or MLRA): LRR K Lat: Long: Datum:

Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: N/A

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

Are Vegetation X, 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.)
A WETS analysis was conducted and indicates that conditions are normal for the time of year. Sample point recorded within upland pasture near the northern property boundary.

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:
No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: P13

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Dactylis glomerata*	70	Yes	FACU
2. *Poa pratensis*	10	No	FACU
3. *Trifolium pratense*	10	No	FACU
4. *Taraxacum officinale*	5	No	FACU
5. *Solidago canadensis*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30ft)			
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: 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	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

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.)
No trees, shrubs, or woody vines observed. Upland pasture.

SOIL

Sampling Point P13

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 8	2.5Y 3/3	100					Loamy/Clayey	SiL
8 - 12	10YR 4/3	85	10YR 4/6	5	C	M	Loamy/Clayey	SiCL
	10YR 2/1	10						
12 - 20	N 2.5/	100					Loamy/Clayey	SiL

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators observed. Mixed slope wash in the soil profile.

Belinski Homes
Downing Farm
Project #: 20190195
July 26, 2019

Appendix D | Site Photographs

Photo #1 Sample point P1

Photo #2 Sample point P1

Photo #3 Sample point P1

Photo #4 Sample point P1

Photo #5 Sample point P2

Photo #6 Sample point P2

Photo #7 Sample point P2

Photo #8 Sample point P2

Photo #9 Sample point P3

Photo #10 Sample point P3

Photo #11 Sample point P3

Photo #12 Sample point P3

Photo #13 Sample point P3

Photo #14 Sample point P4

Photo #15 Sample point P4

Photo #16 Sample point P4

Photo #17 Sample point P5

Photo #18 Sample point P5

Photo #19 Sample point P5

Photo #20 Sample point P5

Photo #21 Sample point P6

Photo #22 Sample point P6

Photo #23 Sample point P6

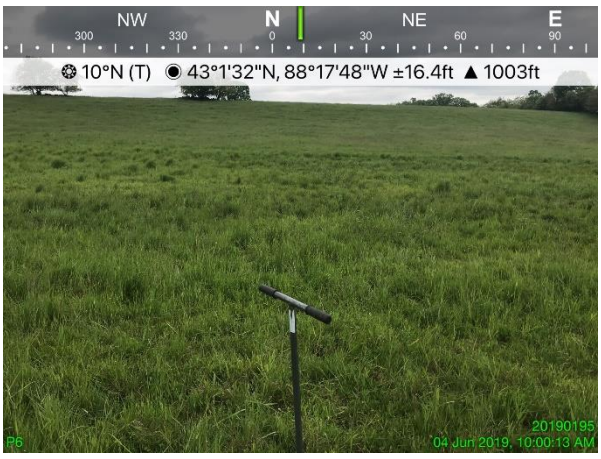


Photo #24 Sample point P6

Photo #25 Sample point P7

Photo #26 Sample point P7

Photo #27 Sample point P7

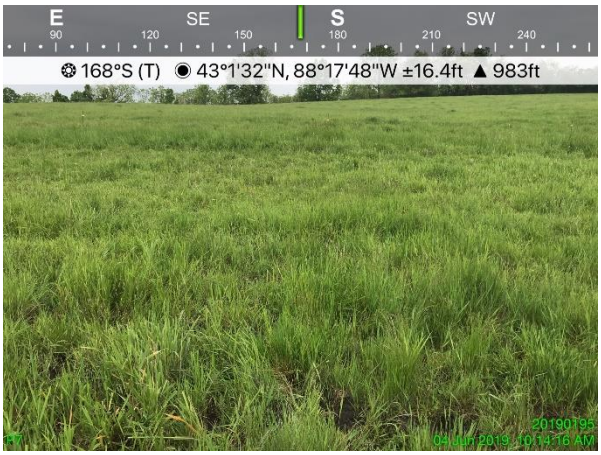


Photo #28 Sample point P7

Photo #29 Sample point P7

Photo #30 Sample point P8

Photo #31 Sample point P8

Photo #32 Sample point P8

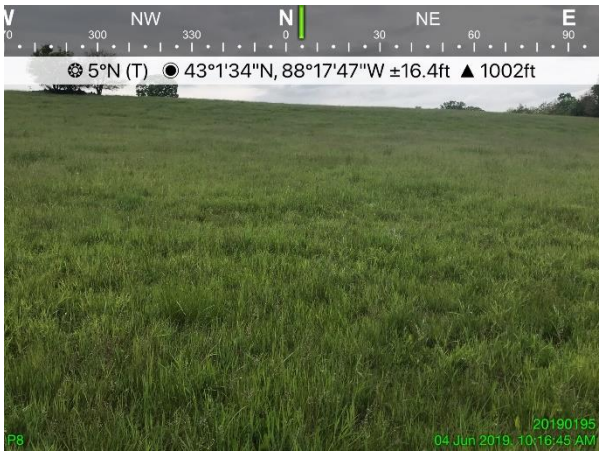


Photo #33 Sample point P8

Photo #34 Sample point P9

Photo #35 Sample point P9

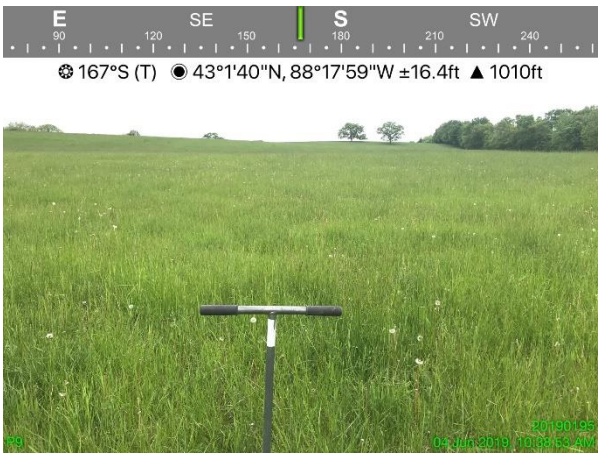


Photo #36 Sample point P9

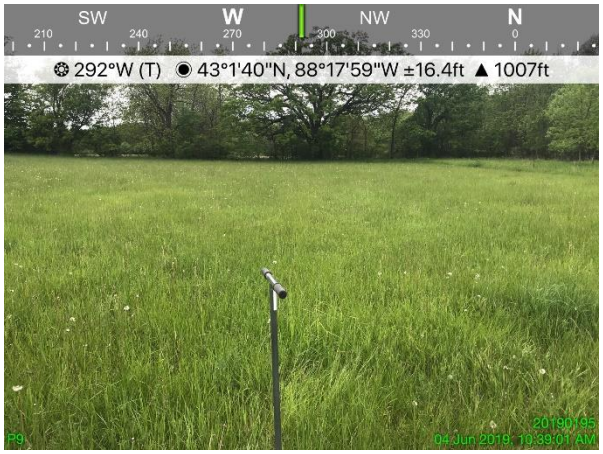


Photo #37 Sample point P9

Photo #38 Sample point P10

Photo #39 Sample point P10

Photo #40 Sample point P10

Photo #41 Sample point P10

Photo #42 Sample point P11

Photo #43 Sample point P11

Photo #44 Sample point P11

Photo #45 Sample point P12

Photo #46 Sample point P12

Photo #47 Sample point P12

Photo #48 Sample point P12

Photo #49 Sample point P13

Photo #50 Sample point P13

Photo #51 Sample point P13

Photo #52 Sample point P13

Appendix E | Delineator Qualifications

Jeff Kraemer

Principal Scientist
506 Springdale Street
Mount Horeb, WI 53572
jeff@heartlandecological.com
(608) 490-2450

Jeff is the founder of Heartland Ecological Group, Inc. With over 16 years of experience as an environmental consultant, ecological and regulatory policy practitioner, and managing business leader, Jeff provides proven value to clients with his vast experience guiding often complex projects through environmental regulatory and technical challenges applied throughout a diversity of industry sectors. Jeff is recognized by the Wisconsin Department of Natural Resources Wetland Delineation Assurance Program and is the longest standing assured wetland delineator in the state of Wisconsin.

Jeff is a recognized expert in the field of wetland ecology and delineation; wetland restoration and mitigation banking; and regulatory policy and permitting associated with wetlands and waterways. His experience includes: Wetland Determination, Delineation & Functional Assessment; Wetland Restoration, Mitigation, Banking & Monitoring; Botanical / Biological Surveys & Natural Resource Inventories; Rare Species Surveys, Conservation Plans & Monitoring; Habitat Restoration, Wildlife Surveys, SCAT surveys, Environmental Assessments; Local, state, federal permit applications; Expert Witness testimony; and Regulatory permit compliance.

Education

MS, Biological Sciences (Emphasis in Wetland Ecology), University of Wisconsin – Milwaukee, WI, 2003

BS, Biological Sciences (Emphasis in Aquatic Biology) University of Wisconsin – La Crosse, WI, 1999

Regional Supplement Field Practicum
Wetland Training Institute (WTI)
Portage, WI, 2017

Basic and Advanced Wetland Delineation Training, Continuing Education and Extension, UW-La Crosse, WI, 2001

Identification of Sedges Workshop, UW-Milwaukee, Saukville, WI, 2001

Vegetation of Wisconsin Workshop, UW-Milwaukee, Saukville, WI 2000

Environmental Corridor Delineation Workshop, Southeastern Wisconsin Regional Planning Commission (SEWRPC), 2004

Wetland Soils and Hydrology Workshop, Wetland Training Institute, Toledo, OH, 2003

Critical Methods in Wetland Delineation
University of Wisconsin - La Crosse Continuing Education and Extension
Madison, WI, 2006 - 2018

Federal Wetland Regulatory Policy Course
Wetlands Training Institute (WTI)
Cottage Grove, WI, 2010

Registrations

Professionally Assured Wetland Delineator, Wisconsin Department of Natural Resources (2005-Present)

Wetland Professional in Training (WPIT), Society of Wetland Scientists Certification Programs

City of Madison, Various Projects, Madison, WI
Completed numerous wetland delineations on behalf the City of Madison in support of stormwater improvement and other facility improvement projects.

Private Landowners & Recreational Properties

Erin Hills Golf Course, Washington County, WI
Completed wetland delineations throughout the approximate 200-acre golf course property. Provided wetland regulatory guidance in support of the renovation of Erin Hills in preparation for hosting the 2017 U.S. Open championships.

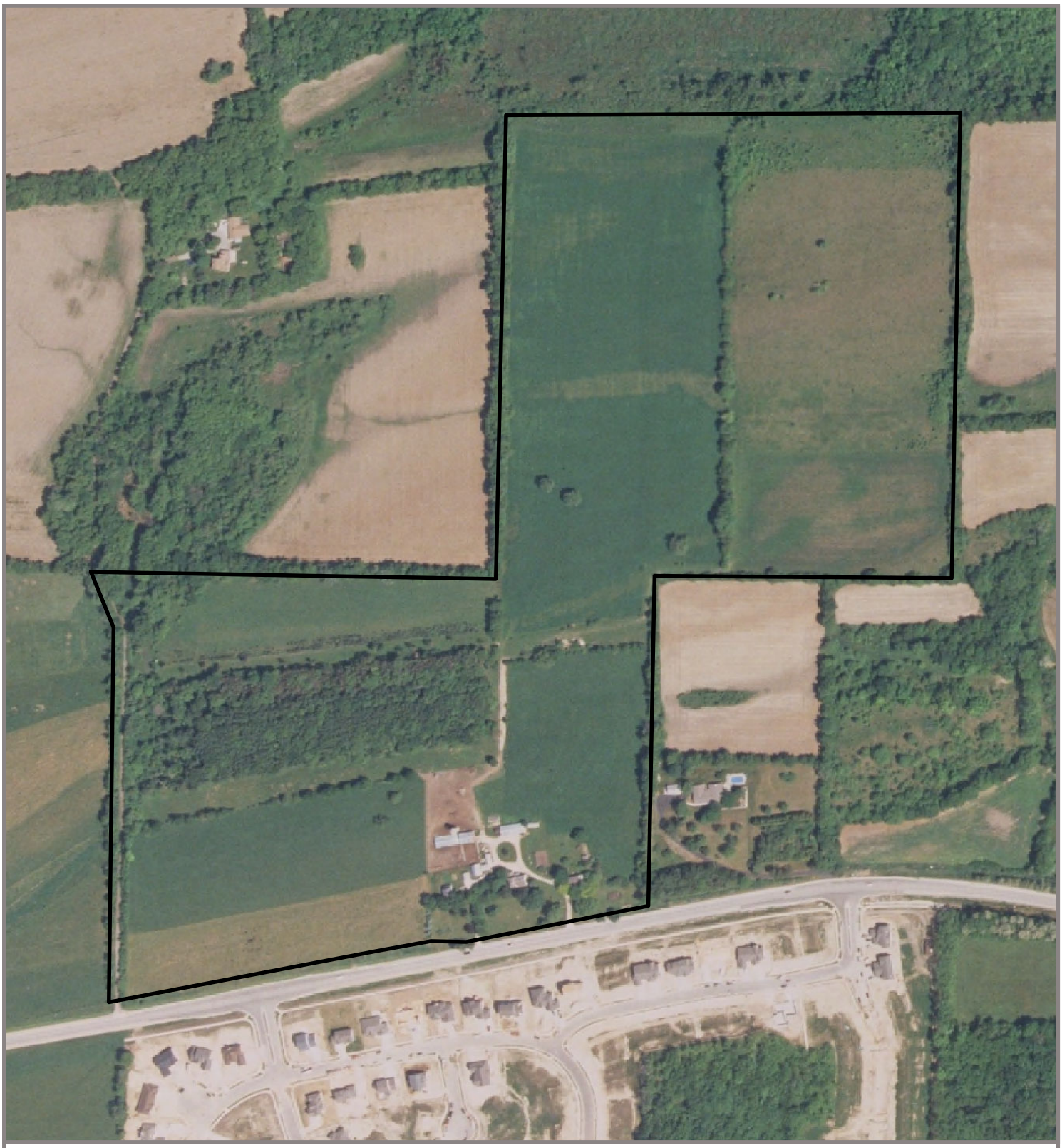
La Belle Golf Course, The Prestwick Group, Inc., Lac La Belle, WI
Completed wetland delineations throughout the approximate 250-acre golf course property. Provided wetland regulatory guidance in support of the renovation of the La Belle Golf Course.

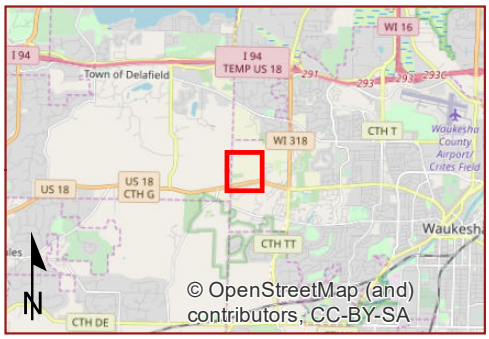
Big Hollow Wetland Mitigation Bank, Spring Green, WI
Completed wetland delineations on the approximate 200-acre property and evaluated the potential for developing a private wetland mitigation bank. Coordinated detailed hydrology monitoring and modeling to address potential off-site water impacts and support the development of the hydrology restoration plan. Completed the prospectus documents and submittals to the Interagency Review Team. Organized and led public informational meetings, and various stakeholder meetings to address local concerns.

The Farm Golf Course, Cottage Grove, WI
Completed wetland delineations throughout the approximate 100-acre golf course property. Provided wetland regulatory guidance in support of residential development adjacent to the golf course.

Belinski Homes
Downing Farm
Project #: 20190195
July 26, 2019

Appendix F | NAIP Aerial Imagery 2005 - 2018





Study Area (81.31 ac)

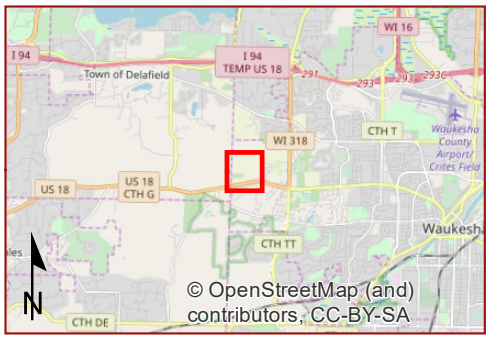
0 200 400
Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2005-06-06
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2005
Data: Waukesha Co, HEG 6/5/2019



Study Area (81.31 ac)

0 200 400
Ft

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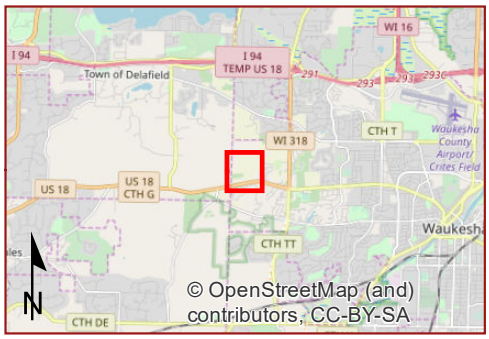
Appendix: 2006-06-29
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2006
Data: Waukesha Co, HEG 6/5/2019



Study Area (81.31 ac)

0 200 400
Ft

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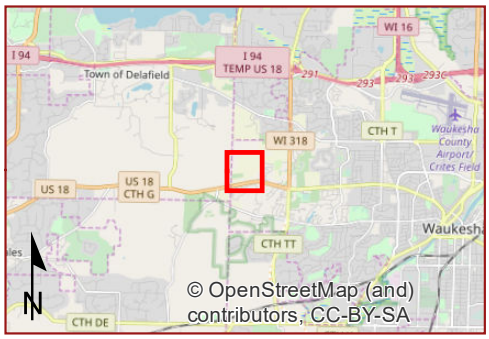
Appendix: 2008-07-05
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2008
Data: Waukesha Co, HEG 6/5/2019



Study Area (81.31 ac)

0 200 400
Ft

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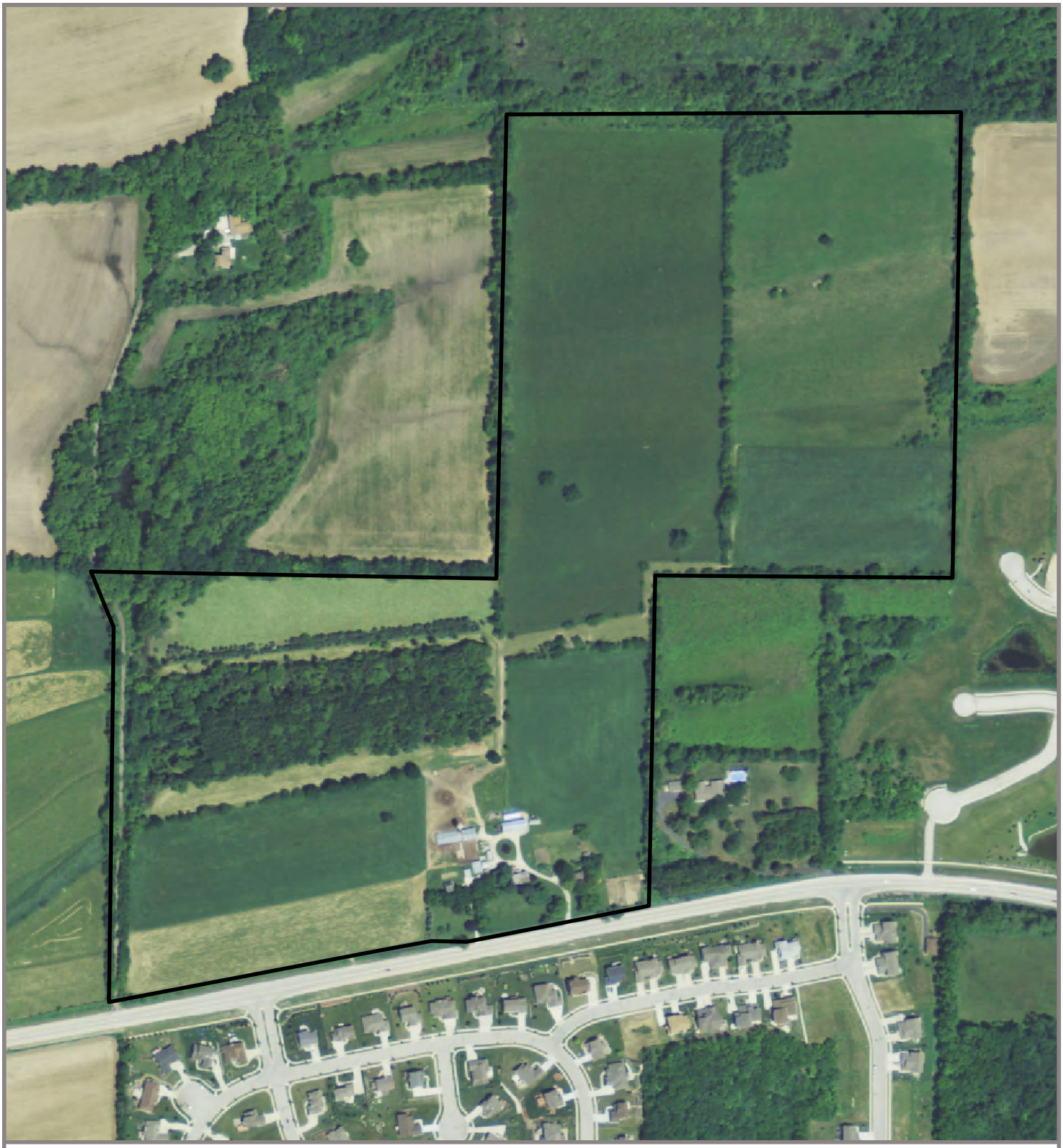
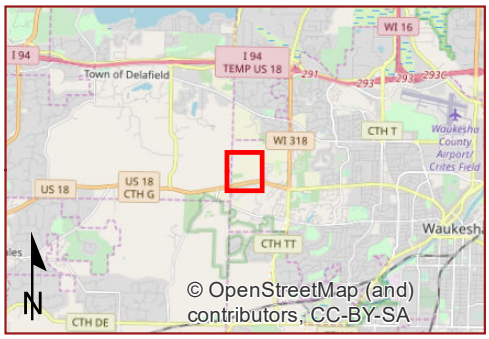
Appendix: 2010-07-01
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2010
Data: Waukesha Co, HEG 6/5/2019





Study Area (81.31 ac)

0 200 400
Ft

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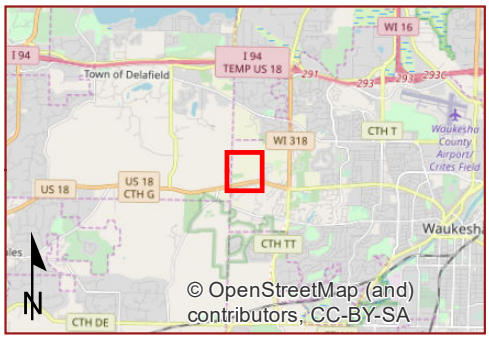
Appendix: 2013-06-19
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2013
Data: Waukesha Co, HEG 6/5/2019



Study Area (81.31 ac)

0 200 400
Ft

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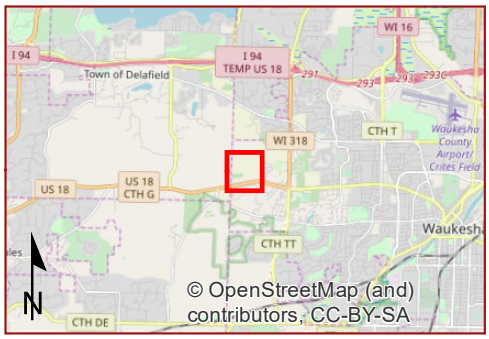
Appendix: 2015-09-15
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2015
Data: Waukesha Co, HEG 6/5/2019



Study Area (81.31 ac)

0 200 400
Ft

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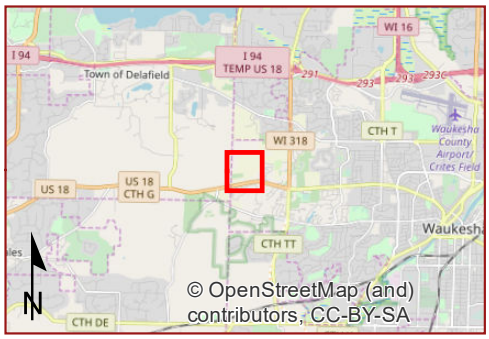
Appendix: 2017-07-30
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2017
Data: Waukesha Co, HEG 6/5/2019



Study Area (81.31 ac)

0 200 400
Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2018-09-17
NAIP Aerial Imagery

Downing Farm
Project #20190195
T7N, R19E, S21
C Waukesha,
Waukesha Co, WI

NAIP Year 2018
Data: Waukesha Co, HEG 6/5/2019