Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit (LGU)	Address
City of Golden Valley	**7800 GoldenValley Road** **Golden Valley MN 55427**

1. PROJECT INFORMATION

Applicant Name	Project Name	Date of Application	Application Number
Minneapolis Park Board	**Wirth Cart improvements**	**8/1/19**	**19-001**

☒ Attach site locator map.

Type of Decision:

☒ Wetland Boundary or Type Sequencing ☐ No-Loss ☐ Exemption ☐

☐ Replacement Plan ☐ Banking Plan

Technical Evaluation Panel Findings and Recommendation (if any):

☒ Approve ☐ Approve with conditions ☐ Deny

Summary (or attach):

2. LOCAL GOVERNMENT UNIT DECISION

Date of Decision: **9/4/19**

☒ Approved ☐ Approved with conditions (include below) ☐ Denied

LGU Findings and Conclusions (attach additional sheets as necessary):

After review of the project and weltnd boundaries on site, it has been determined that there will be no impacts to wetlands within the work area. All grading and filling will take place outside of any wetlands exisiting on site. Wetland buffers will be preserved or expanded as part of the project in accordance with all City and Watershed requirements.

Two Wetlands were identified and delineated within the site boundary as part of the report. The applicant is requesting Boundary and type approval.

The TEP was asked to provide comments on the wetland delineation report during the 15 day review period, which ended 8/30/19. No comments were received.

The City concurs with the findings in the submitted wetland delineation report. No replacement or mititgation will be required as part of this finding.

For Replacement Plans using credits from the State Wetland Bank:

Bank Account #	Bank Service Area	County	Credits Approved for Withdrawal (sq. ft. or nearest .01 acre)

Replacement Plan Approval Conditions. In addition to any conditions specified by the LGU, the approval of a Wetland Replacement Plan is conditional upon the following:

☐ **Financial Assurance:** For project-specific replacement that is not in-advance, a financial assurance specified by the LGU must be submitted to the LGU in accordance with MN Rule 8420.0522, Subp. 9 (List amount and type in LGU Findings).

☐ **Deed Recording:** For project-specific replacement, evidence must be provided to the LGU that the BWSR "Declaration of Restrictions and Covenants" and "Consent to Replacement Wetland" forms have been filed with the county recorder's office in which the replacement wetland is located.

☐ **Credit Withdrawal:** For replacement consisting of wetland bank credits, confirmation that BWSR has withdrawn the credits from the state wetland bank as specified in the approved replacement plan.

Wetlands may not be impacted until all applicable conditions have been met!

LGU Authorized Signature:

Signing and mailing of this completed form to the appropriate recipients in accordance with 8420.0255, Subp. 5 provides notice that a decision was made by the LGU under the Wetland Conservation Act as specified above. If additional details on the decision exist, they have been provided to the landowner and are available from the LGU upon request.

Name	Title	
Jeff Oliver, PE.,	**City Engineer**	
Signature	Date	Phone Number and E-mail
	9/4/19	**763-593-8034** **joliver@goldenvalleymn.gov**

THIS DECISION ONLY APPLIES TO THE MINNESOTA WETLAND CONSERVATION ACT. Additional approvals or permits from local, state, and federal agencies may be required. Check with all appropriate authorities before commencing work in or near wetlands.

Applicants proceed at their own risk if work authorized by this decision is started before the time period for appeal (30 days) has expired. If this decision is reversed or revised under appeal, the applicant may be responsible for restoring or replacing all wetland impacts.

This decision is valid for three years from the date of decision unless a longer period is advised by the TEP and specified in this notice of decision.

3. APPEAL OF THIS DECISION

Pursuant to MN Rule 8420.0905, any appeal of this decision can only be commenced by mailing a petition for appeal, including applicable fee, within thirty (30) calendar days of the date of the mailing of this Notice to the following as indicated:

Check one:

☒ Appeal of an LGU staff decision. Send petition and $200.00 fee (if applicable) to: **City of Golden Valley** **7800 Golden Valley Road** **Golden Valley MN 55427**	☐ Appeal of LGU governing body decision. Send petition and $500 filing fee to: Executive Director Minnesota Board of Water and Soil Resources 520 Lafayette Road North St. Paul, MN 55155

4. LIST OF ADDRESSEES

☒ SWCD TEP member: **Stacey Lijewski, stacey.lijewski@hennepin.us**
☒ BWSR TEP member: **Ben Carlson, bencarlson@state.mn.us**
☒ LGU TEP member (if different than LGU Contact): **same as above**
☒ DNR TEP member: **Rebecca Horton, becky.horton@statemn.us**
☐ DNR Regional Office (if different than DNR TEP member)
☐ WD or WMO (if applicable):
☒ Applicant and Landowner (if different)
☐ Members of the public who requested notice:

☒ Corps of Engineers Project Manager
☐ BWSR Wetland Bank Coordinator (wetland bank plan decisions only)

5. MAILING INFORMATION

➢For a list of BWSR TEP representatives: www.bwsr.state.mn.us/aboutbwsr/workareas/WCA_areas.pdf

➢For a list of DNR TEP representatives: www.bwsr.state.mn.us/wetlands/wca/DNR_TEP_contacts.pdf

➢Department of Natural Resources Regional Offices:

NW Region:	NE Region:	Central Region:	Southern Region:
Reg. Env. Assess. Ecol. Div. Ecol. Resources 2115 Birchmont Beach Rd. NE Bemidji, MN 56601	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1201 E. Hwy. 2 Grand Rapids, MN 55744	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1200 Warner Road St. Paul, MN 55106	Reg. Env. Assess. Ecol. Div. Ecol. Resources 261 Hwy. 15 South New Ulm, MN 56073

For a map of DNR Administrative Regions, see: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf

➢For a list of Corps of Project Managers: www.mvp.usace.army.mil/regulatory/default.asp?pageid=687 or send to:

US Army Corps of Engineers
St. Paul District, ATTN: OP-R
180 Fifth St. East, Suite 700
St. Paul, MN 55101-1678

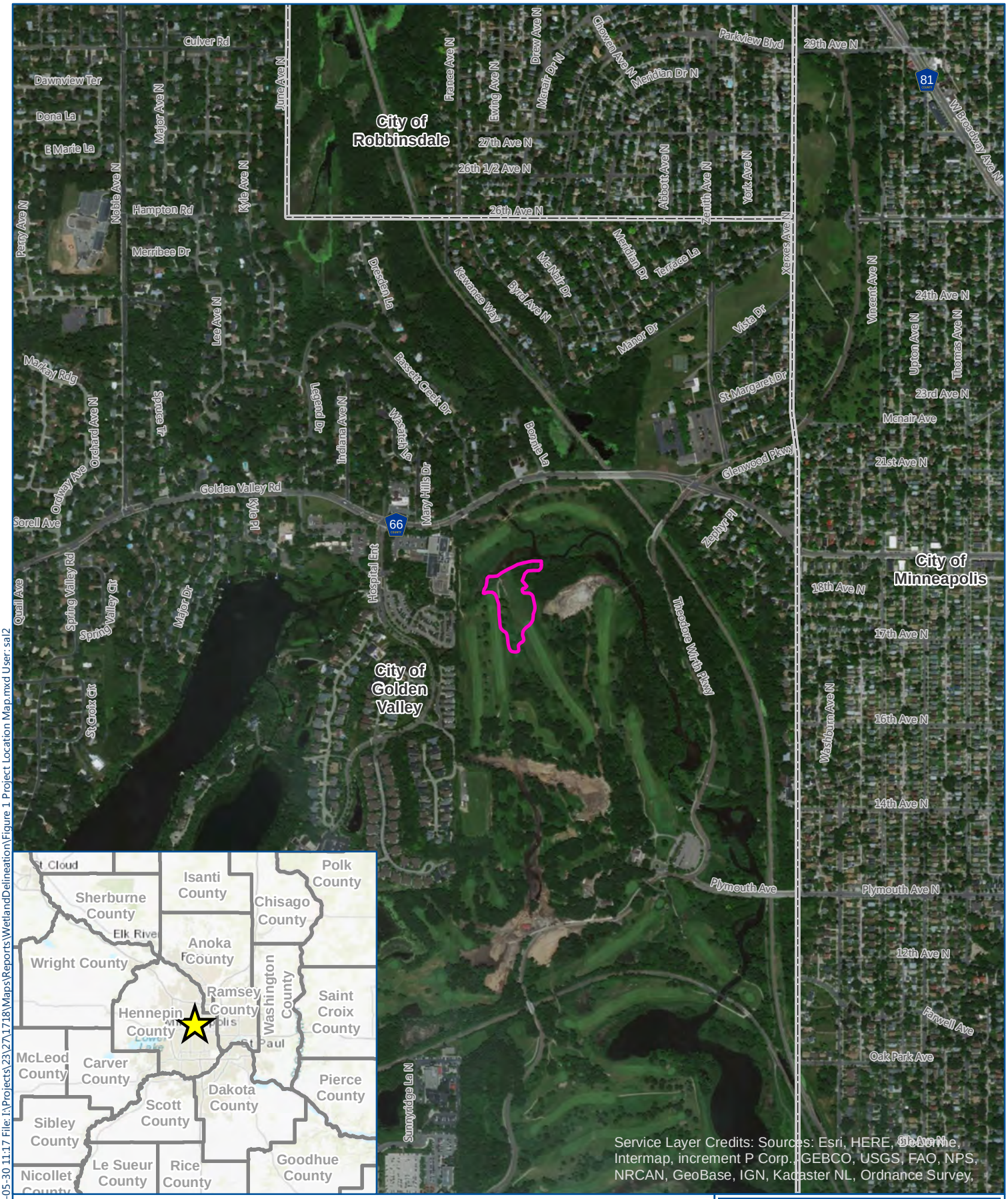
➢For Wetland Bank Plan applications, also send a copy of the application to:

Minnesota Board of Water and Soil Resources
Wetland Bank Coordinator
520 Lafayette Road North
St. Paul, MN 55155

6. ATTACHMENTS

In addition to the site locator map, list any other attachments:

- ☒ **Delineation Report**
- ☐
- ☐
- ☐
- ☐



Project Location

Wetland Evaluation Area

Municipal Boundary

N

0 500 1,000

Feet

BARR

PROJECT LOCATION MAP
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 1

Barr Footer: ArcGIS 10.6.1, 2019-05-30 11:17 File: I:\Projects\23\27\1718\Maps\Reports\WetlandDelineation\Figure 1 Project Location Map.mxd User: sal2

BARR

Wetland Evaluation Area

Sample Point

Delineated Wetland

N

0 50 100

Feet

WETLAND DELINEATION MAP
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 6

Wetland Delineation Report

Theodore Wirth Golf Course Improvements (Holes 15/16)

Prepared for
Minneapolis Park & Recreation Board

June 2019

4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.832.2600
www.barr.com

Wetland Delineation Report

June 2019

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1.0 Introduction

The Minneapolis Park & Recreation Board (MPRB) contracted Barr Engineering Co (Barr) to complete a wetland delineation in preparation for the construction of golf cart path improvements to the Theodore Wirth Golf Course at Holes 15 and 16 (i.e. the Project). The project site is located in Minneapolis, Hennepin County, Minnesota. The project site is within Section 17 of Township 29 North, Range 24 West (**Figure 1**).

A field wetland delineation was conducted within an evaluation area defined by the approximate grading limits indicated in project plans. Two wetlands were delineated within the Project area and are depicted in **Figure 6**.

This Wetland Delineation Report has been prepared in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010) and the requirements of the Minnesota Wetland Conservation Act (WCA) of 1991. Barr delineated the wetland boundary and determined wetland types within the evaluation area on May 16, 2019.

This report includes a general environmental information (Section 2.0), descriptions of the delineated wetlands and functional assessment results (Section 3.0), and a discussion of regulations and the administering authorities (Section 4.0). The Tables section includes the precipitation data. The Figures section includes the Site Location Map, Topography Map, National Wetland Inventory (NWI), Public Waters Inventory (PWI), Hydric Soils Map and the Wetland Boundary Map. **Appendix A** includes Wetland Data Forms, **Appendix B** includes the Minnesota Routine Assessment Method (MNRAM) wetland functional assessment summaries, and site photographs are included in **Appendix C**.

2.0 General Environmental Setting

2.1 Site Description

The Project is located within the Theodore Wirth Golf Course at holes 15 and 16. The Project area is comprised of manicured fairway and putting greens with some hardwood forest in adjacent areas. Bassett Creek also runs along the northern boundary of the Project area. Lands surrounding the golf course are primarily high density residential uses (**Figure 1**).

2.2 Topography

The Project area has flat to moderately undulating topography and a more abrupt topographic break leading into Bassett Creek (**Figure 2**).

2.3 Precipitation

Recent precipitation data were compared to historic data for evaluating annual and monthly deviations from normal conditions. Simulated precipitation data were obtained from the Minnesota Climatology Working Group, Wetland Delineation Precipitation Data Retrieval from a Gridded Database (http://climate.umn.edu/gridded_data/precip/wetland/wetland.asp) for wetlands in Hennepin County, Township 29 North, Range 24 West, Section 17.

In 2019, antecedent moisture conditions were within the wetter than normal range based on precipitation for the three months prior to the May 16, 2019 site visit. These data were obtained from NRCS climate station 215838, New Hope Weather Station (**Table 1**). The water year has been wet for five of the past six years except in 2015 when the water year was normal (**Table 2**).

2.4 National Wetland Inventory

The National Wetland Inventory Map has identified two wetland types in the Project area: fresh water emergent wetland and forested/shrub wetland (**Figure 3**).

2.5 Water Resources

The Minnesota Department of Natural Resources (MnDNR) Public Waters Inventory (PWI) has identified Bassett Creek (27-650P) as a public watercourse; Bassett Creek is located at the northern edge of the wetland evaluation area (**Figure 4**). Bassett Creek is identified by the Minnesota Pollution Control Agency (MPCA) as an impaired water with aquatic life and aquatic recreation identified as the affected resources.

2.6 Soil Resources

Soil information within the Project area was obtained from the Soil Survey of Hennepin County, Minnesota (USDA, 1974). Five soil map units were identified within the Project area (**Figure 5**):

- Muskego and Houghton soils, 0 to 1 percent slopes (L50A) – Hydric;
- Koronis-Kingsley complex, 12 to 18 percent slopes, eroded (L58D2) – Predominately Non-Hydric;

- Koronis-Kingsley complex, 2 to 6 percent slopes (L58B) – Predominately Non-Hydric;
- Koronis-Kingsley complex, 6 to 12 percent slopes, eroded (L58C2) – Predominately Non-Hydric;
- Udorthents, wet substratum, 0 to 2 percent slopes (U2A) – Not Hydric.

3.0 Wetland Delineation

3.1 Wetland Delineation and Classification Methods

Wetlands within the Project area were delineated and classified during one site visit on May 16, 2019. The wetland delineation was established according to the Routine On-Site Determination Method specified in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Edition) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010).

The delineated wetland boundaries and sample points were surveyed using a Global Positioning System (GPS) with sub-meter accuracy (**Figure 6**). Wetland boundaries were also flagged in the field with pink pin flags marked "Wetland Delineation."

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) Cowardin System (Cowardin et al., 1979), the USFWS Circular 39 system (Shaw and Fredine, 1956), and the Eggers and Reed Wetland Classification System (Eggers and Reed, 1977).

Soil borings were placed in and around each wetland, to a depth of at least 20 inches below the ground surface where possible. Representative soil samples from each boring were examined for the presence of hydric soil indicators using the Natural Resources Conservation Service (NRCS) hydric soil indicators (Version 8.1). Soil colors (e.g., 7.5YR 4/2, etc.) were determined using a Munsell® soil color chart and noted on the Wetland Data Forms in **Appendix A**.

Hydrologic conditions were evaluated at each soil boring, and this information was also noted on the Wetland Data Forms. The dominant plant species were identified, and the corresponding wetland indicator status of each plant species was determined and noted on the Wetland Data Forms (**Appendix A**). A wetland functional assessment was also completed for each wetland using the Minnesota Routine Assessment Method (MnRAM), and the resulting management classification reports are located in **Appendix B**. Photographs taken at the time of the site visit are provided in **Appendix C**.

3.2 Wetland Descriptions

Two wetlands were delineated within the Project area. Descriptions and assessments of the wetland areas are provided below, along with the results of the wetland functional assessment.

3.2.1 Wetland 1

Wetland 1 is adjacent to Bassett Creek and include a complex of three wetland communities: Type 1L (PFO1A), floodplain forest (70%), Type 2 (PEMB) wet meadow (20%) and Type 3 (PEMC) shallow marsh (10%) (**Figure 6**). Most of the periphery of Wetland 1 has moderate slopes that lead into it from the surrounding area.

Reed canary grass (*Phalaris arundinacea*) was dominant in the wet meadow community, narrow-leaf cattail (*Typha angustifolia*) was dominant in the shallow marsh community, and ash-leaf maple (*Acer negundo*) was dominant in the floodplain forest community.

Hydrology observed within wet meadow community was either saturated within 12 inches of the soil surface or had at least two secondary indicators. The shallow marsh community had surface saturation throughout with approximately 10% inundation up to 2 inches. Approximately 60% of the floodplain forest community was saturated at the surface with the remaining area likely saturated within 12 inches of the soil surface.

Soils mapped within Wetland 1 were identified as Muskego and Houghton soils, and Udorthents, wet substratum. Soils within shallow marsh community resembled the Muskego and Houghton soil series descriptions but soils within the wet meadow and floodplain forest communities did not resemble either the Muskego and Houghton or the Udorthents series.

The transition to upland was defined by the lack of hydrology and hydric soil indicators. Dominant vegetation in uplands areas was reed canary grass, which is hydrophytic.

Wetland 1 has a wetland management classification of Manage 2 based on the MnRAM evaluation. Maintenance of Characteristic Wildlife Habitat was rated as moderate, which yielded the Manage 2 classification for Wetland 1 (**Appendix B**).

3.2.2 Wetland 2

Wetland 2 is a drainage swale with Type 2 (PEMB) wet meadow characteristics. It extends north from a larger wetland complex located south of the evaluation area. Wetland 2 may intermittently connect this larger wetland complex to Bassett Creek during flooded periods (**Figure 6**). The surrounding upland area is golf course fairway which has gentle slopes leading into the wetland and ranging between 1-3% slopes.

Reed canary grass (*Phalaris arundinacea*) was the dominant plant in Wetland 2. Sub-dominant plants included blunt spikerush (*Eleocharis obtusa*), Kentucky blue grass (*Poa pratensis*) and hummock sedge (*Carex stricta*). Wetland 2 had surface saturation throughout with approximately 5% inundation up to 1 inch. Sampled soils within Wetland 2 were similar to Koronis-Kingsley complex, which was mapped within the wetland.

The transition to upland was defined by the lack of hydrology and hydric soil indicators. Dominant vegetation in upland areas was Kentucky blue grass which is considered hydrophyic or facultative in the Midwest region.

Wetland 2 has a wetland management classification of Manage 3 based on the MnRAM evaluation. The Vegetative Diversity category was rated as low which yielded the Manage 3 classification for Wetland 2 (**Appendix B**).

Wetland 2 has wet meadow wetland characteristics but functions as an intermittently flooded drainage swale that is somewhat eroded. Wetland 2 is not mapped on the NWI and is located within a predominantly non-hydric soil complex. Barr has determined that Wetland 2 is incidental based on its function as a drainage swale. The MN Wetland Conservation Act (WCA) does not regulate incidental wetlands per Rule 8420.0105, Sub. 2D; therefore, on behalf of MPRB, Barr requests a determination of incidental status by the WCA Local Government Unit in addition to boundary approval.

4.0 Regulatory Overview

The USACE regulates the placement of dredge or fill materials into wetlands that are located adjacent to or are hydrologically connected to interstate or navigable waters under the authority of Section 404 of the Clean Water Act. If the USACE has jurisdiction over any portion of a project, they may also review impacts to wetlands under the authority of the National Environmental Policy Act.

Filling, excavating, and draining wetlands may also be regulated by the Minnesota Wetland Conservation Act (WCA), and the Minnesota Public Waters Inventory Program, which are administered by the City of Golden Valley and the MnDNR, respectively. The USACE, the City of Golden Valley, and the MnDNR should be contacted before altering wetlands in the Project area. In addition, delineated wetland boundaries may be reviewed, if needed, by a Technical Evaluation Panel (TEP) consisting of representatives from the City of Golden Valley, Minnesota Board of Water and Soil Resources, Hennepin County, MnDNR, and USACE.

5.0 References

Cowardin, L.M., V. Carter, F.C. Golet, and R.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, FWS/OBS079/31, 103 pp.

Eggers, S.D. and Reed, D.M. 1997. *Wetland Plants and Plant Communities of Minnesota and Wisconsin*. U.S. Army Corps of Engineers, St. Paul District. St. Paul, Minnesota.

U.S. Department of Agriculture, Natural Resources Conservation Service. 1974. *Soil Survey of Hennepin County, Minnesota*. Washington, D.C.

U. S. Department of Agriculture, Natural Resources Conservation Service. 2010. *Field Indicators of Hydric Soils in the United States, Version 8.1*. G.W. Hurt and L.M. Vasilas (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

U.S. Army Corps of Engineers. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*. August 2010. Wetlands Regulatory Assistance Program.

U.S. Army Corps of Engineers. 1987. *1987 U.S. Army Corps of Engineers Wetland Delineation Manual*. Wetlands Research Program Technical Report Y-87-1 (on-line edition). Waterways Experiment Station, Vicksburg, Mississippi.

U.S. Fish and Wildlife Service. 1956. *Wetlands of the United States Circular 39*. U.S. Government Printing Office, Washington, D.C.

Precipitation Tables

Table 1
Antecedent Moisture Conditions Prior to May 16, 2019 Site Visit
Theo Wirth Wetland Delineation
Golden Valley, MN

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

County: Hennepin
Township Name: unnamed
Nearest Community: Glenwood Junction
Township Number: 29N
Range Number: 24W
Section Number: 17

Aerial photograph or site visit date:
Thursday, May16, 2019

Score using 1981-2010 normal period

(value are in inches)	first prior month: **April 2019**	second prior month: **March 2019**	third prior month: **February 2019**
estimated precipitation total for this location:	3.79R	2.40R	2.22R
there is a 30% chance this location will have less than:	2.17	1.38	0.40
there is a 30% chance this location will have more than:	3.07	2.05	1.01
type of month: **dry** **normal** **wet**	**wet**	**wet**	**wet**
monthly score	3 * **3** = 9	2 * **3** = 6	1 ***** **3** **=** 3
multi-month score: 6 to 9 (**dry**) 10 to 14 (**normal**) 15 to 18 (**wet**)	**18 (Wet)**		

Table 2
Precipitation in Comparison to WETS Data
Theo Wirth Wetland Delineation
Golden Valley, MN

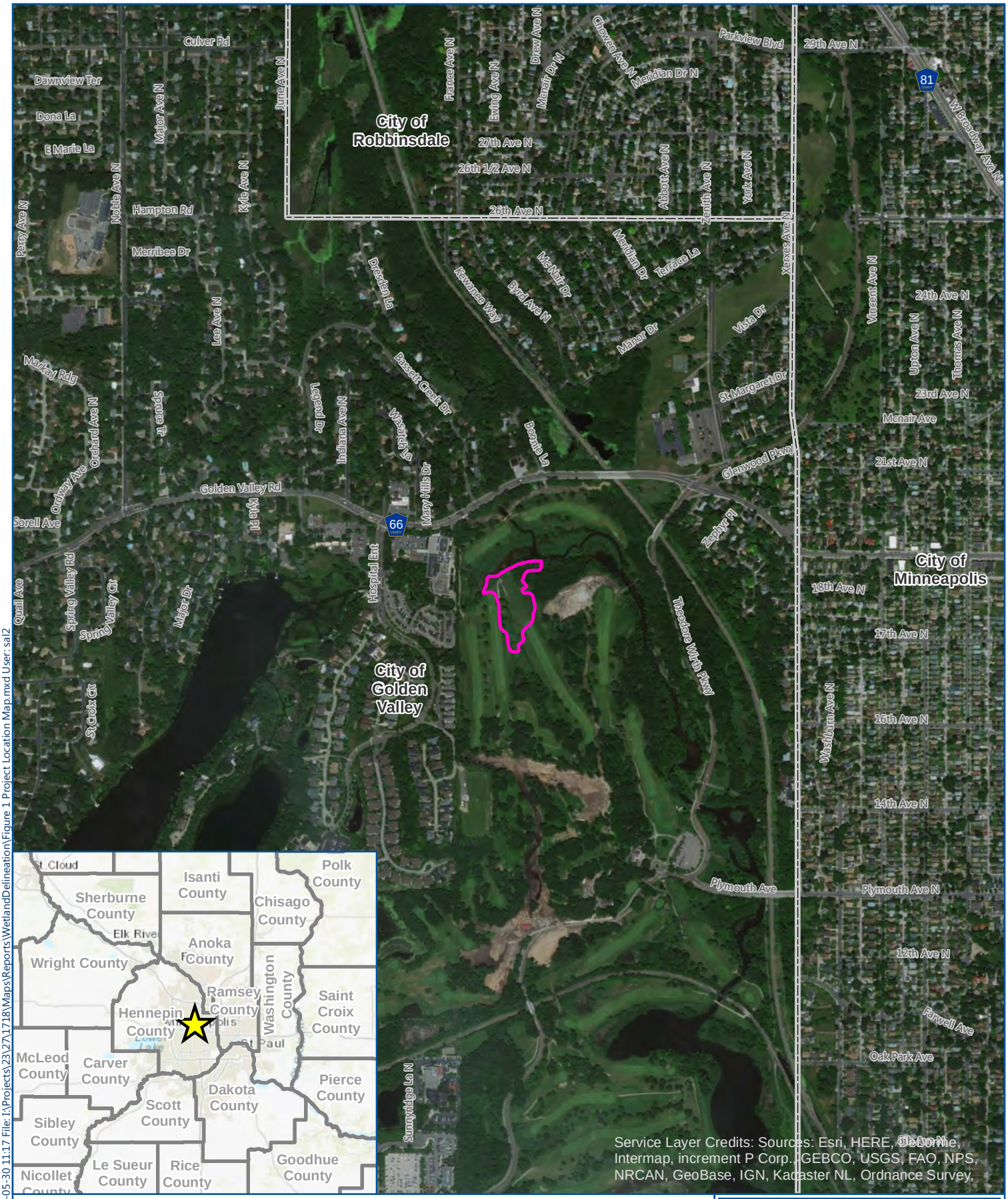
Precipitation data for target wetland location:

County: Hennepin
Township Name: Unnamed
Nearest Community: Glenwood Junction
Township Number: 29N
Range Number: 24W
Section Number: 17

Precipitation Totals are in Inches	
Color Key	**Multi-month Totals**:
total is in lowest 30th percentile of the period-of-record distribution	**WARM** = warm season (May thru September)
total is => 30th and <= 70th percentile	**ANN** = calendar year (January thru December)
total is in highest 30th percentile of the period-of-record distribution	**WAT** = water year (Oct. previous year thru Sep. present year)

Period-of-Record Summary Statistics															
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
30%	0.52	0.49	1.12	1.68	2.59	3.16	2.33	2.63	1.92	1.31	0.72	0.58	16.18	26.18	26.32
70%	1.06	1.15	2.03	2.91	4.30	5.41	4.44	4.45	3.78	2.69	1.87	1.37	21.39	32.71	32.01
mean	0.88	0.90	1.65	2.45	3.65	4.44	3.82	3.67	3.08	2.24	1.53	1.04	18.68	29.35	29.38
1981-2010 Summary Statistics															
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
30%	0.54	0.40	1.38	2.17	2.70	3.62	2.84	3.51	2.20	1.34	1.08	0.69	18.27	30.68	28.19
70%	1.23	1.01	2.05	3.07	4.07	5.28	4.93	4.94	3.93	3.62	2.08	1.50	22.32	34.86	36.29
mean	0.89	0.79	1.92	2.86	3.70	4.58	4.40	4.21	3.46	2.61	1.85	1.24	20.36	32.51	32.32
Year-to-Year Data															
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
2019	0.48R	2.22R	2.40R	3.79R	-	-	-	-	-	-	-	-	-	-	-
2018	1.08	1.34	1.36	2.46	2.64	3.84	3.70	3.18	6.28	3.41	1.49	1.45	19.64	32.23	32.48
2017	0.85	0.75	0.72	3.61	6.34	3.56	3.26	6.65	1.49	5.44	0.42	0.74	21.30	33.83	35.35
2016	0.31	0.83	1.77	3.89	2.07	3.60	5.36	9.79	6.04	3.14	2.73	2.25	26.86	41.78	42.77
2015	0.32	0.30	0.68	2.15	4.49	3.71	6.85	3.22	3.79	2.79	4.27	2.05	22.06	34.62	28.88
2014	1.12	1.30	0.77	6.86	4.11	10.06	2.99	2.90	1.96	1.16	1.16	1.05	22.02	35.44	38.43
2013	0.79	1.19	2.01	4.53	5.11	7.41	4.14	1.75	1.26	4.19	0.61	1.56	19.67	34.55	32.09
2012	0.56	1.90	1.50	3.03	9.26	3.81	4.77	1.46	0.44	1.35	0.93	1.62	19.74	30.63	28.77
2011	0.95	1.01	2.43	3.18	5.45	4.35	7.62	4.18	0.54	0.92	0.23	0.89	22.14	31.75	36.85
2010	0.63	0.81	0.90	2.10	2.75	6.44	4.40	6.39	5.96	1.89	1.95	3.30	25.94	37.52	39.30
2009	0.53	1.09	1.72	1.60	0.36	3.40	1.26	6.47	0.63	6.02	0.54	2.36	12.12	25.98	21.62
2008	0.15	0.54	2.03	4.07	2.52	4.08	2.14	2.50	2.14	1.71	1.29	1.56	13.38	24.73	27.27
2007	0.66	1.53	3.65	2.15	3.14	1.97	2.23	6.27	5.48	5.10	0.09	1.91	19.09	34.18	31.06
2006	0.85	0.40	1.84	3.62	3.73	3.76	2.31	6.28	3.18	0.60	1.05	2.33	19.26	29.95	33.89
2005	1.31	1.10	1.26	2.68	3.50	5.57	2.97	3.96	6.81	4.79	1.74	1.39	22.81	37.08	34.48
2004	0.54	1.60	2.21	2.93	6.02	4.03	4.02	1.47	4.73	3.70	1.09	0.53	20.27	32.87	30.64
2003	0.33	0.94	1.73	2.89	5.78	7.91	1.82	0.43	2.10	0.95	1.16	0.98	18.04	27.02	28.39
2002	0.54	0.61	2.09	4.03	3.94	8.63	6.33	6.09	3.86	4.11	0.07	0.28	28.85	40.58	40.92
2001	1.30	1.55	1.05	7.43	5.57	5.02	2.33	3.01	4.08	0.94	3.20	0.66	20.01	36.14	38.08
2000	0.98	1.18	1.14	1.42	4.00	3.78	6.60	3.76	3.09	1.11	4.15	1.48	21.23	32.69	27.72

Figures



Project Location

Wetland Evaluation Area

Municipal Boundary

N

0 500 1,000

Feet

BARR

PROJECT LOCATION MAP
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 1

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Wetland Evaluation Area

LiDAR Elevation Contours, 2011

10-Foot Contour

2-Foot Contour

N

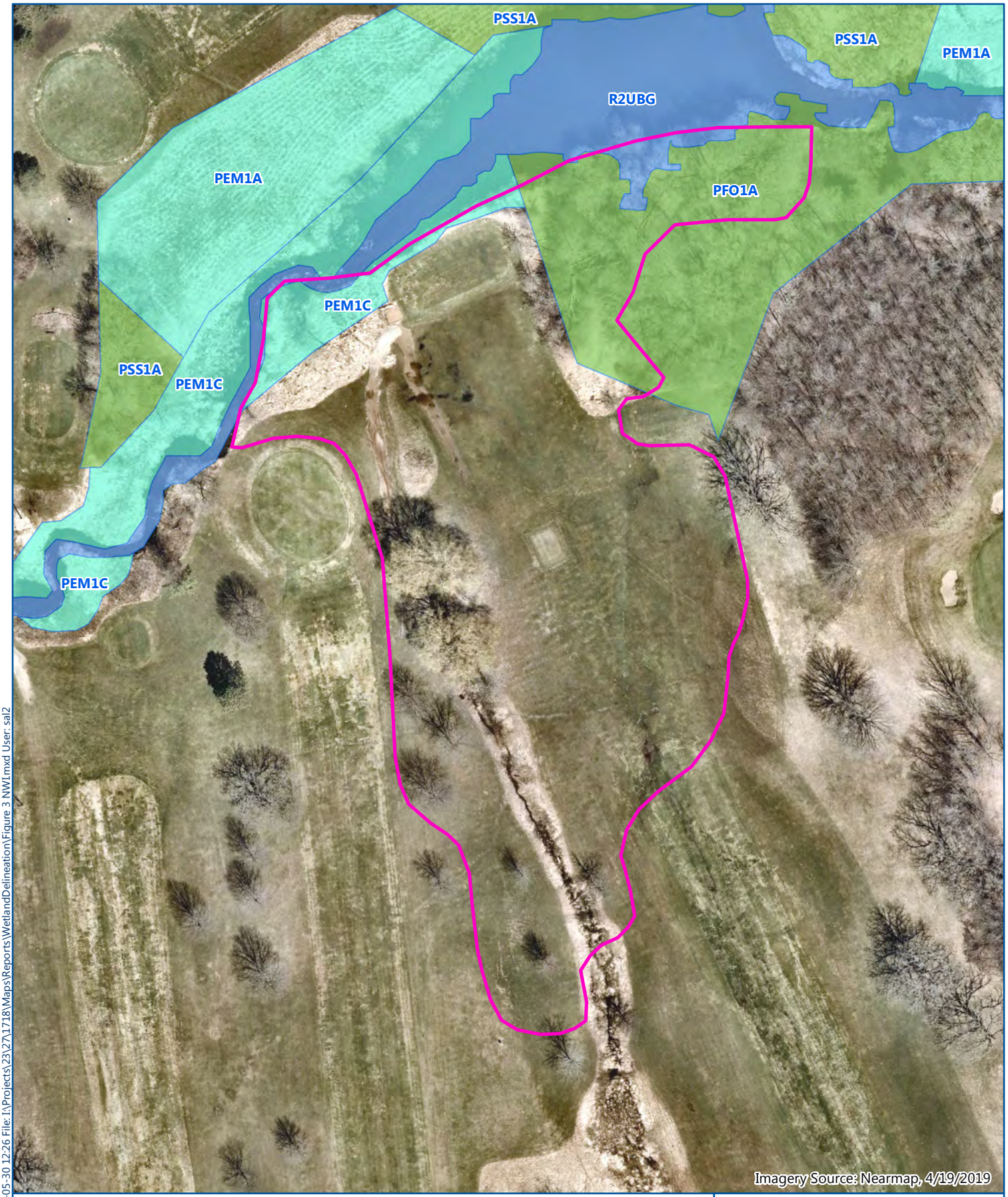
0 50 100

Feet

TOPOGRAPHY MAP
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 2

Barr Footer: ArcGIS 10.6.1, 2019-05-30 12:14 File: I:\Projects\23\27\1718\Maps\Reports\WetlandDelineation\Figure 2 Topography Map.mxd User: sal2



Wetland Evaluation Area

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Riverine

N

0 50 100

Feet

BARR

NWI
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 3

Wetland Evaluation Area

Public Waters Inventory Basins

Public Waters Inventory Watercourses

N

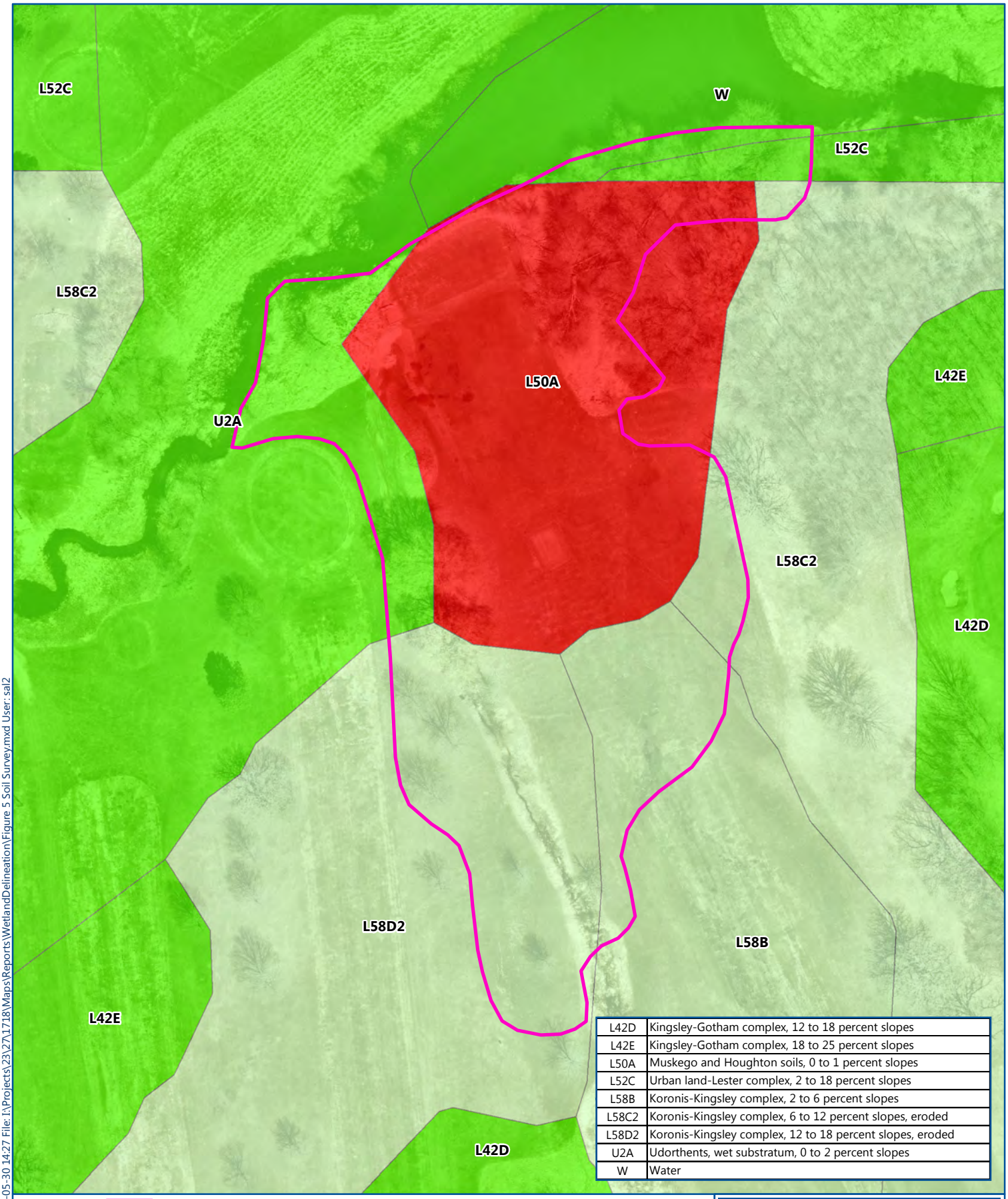
0 100 200

Feet

PUBLIC WATERS INVENTORY
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 4

Barr Footer: ArcGIS 10.6.1, 2019-05-30 12:55 File: I:\Projects\23\27\1718\Maps\Reports\WetlandDelineation\Figure 4 Public Waters Inventory.mxd User: sal2



L42D	Kingsley-Gotham complex, 12 to 18 percent slopes
L42E	Kingsley-Gotham complex, 18 to 25 percent slopes
L50A	Muskego and Houghton soils, 0 to 1 percent slopes
L52C	Urban land-Lester complex, 2 to 18 percent slopes
L58B	Koronis-Kingsley complex, 2 to 6 percent slopes
L58C2	Koronis-Kingsley complex, 6 to 12 percent slopes, eroded
L58D2	Koronis-Kingsley complex, 12 to 18 percent slopes, eroded
U2A	Udorthents, wet substratum, 0 to 2 percent slopes
W	Water

Wetland Evaluation Area

Soil Hydric Rating by Map Unit

Hydric (100%)

Hydric (1 to 32%)

Not Hydric (0%)

N

0 50 100

Feet

BARR

SOIL SURVEY
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 5

Barr Footer: ArcGIS 10.6.1, 2019-05-30 14:27 File: I:\Projects\23\27\1718\Maps\Reports\WetlandDelineation\Figure 5 Soil Survey.mxd User: sal2

BARR

Wetland Evaluation Area

Sample Point

Delineated Wetland

N

0 50 100

Feet

WETLAND DELINEATION MAP
Theo Wirth Wetland Delineation
Hole 15 & 16 Improvements
Golden Valley, Minnesota

FIGURE 6

Appendix A

Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Theo Wirth | Applicant/Owner: MPLS Parks & Recreation Board | City/County: Hennepin | State: MN | Sampling Date: 05/16/19

Investigator(s): BKB | Section: 17 | Township: 29N | Range: 24W | Sampling Point: 1-1 Up

Land Form: Hillslope | Local Relief: Concave | Slope %: 1 | Soil Map Unit Name: See Summary Remarks

Subregion (LRR): M | Latitude: 44.998174 | Longitude: -93.327664 | Datum: NAD 1983

Cowardin Classification: Upland | Circular 39 Classification: Upland | Mapped NWI Classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) | Eggers & Reed (primary): Upland

Are vegetation No Soil No Hydrology No significantly disturbed? | Are "normal circumstances" present? Yes | Eggers & Reed (secondary): N/A

Are vegetation No Soil No Hydrology No naturally problematic? | Eggers & Reed (tertiary): N/A

Eggers & Reed (quaternary): N/A

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

Hydrophytic vegetation present?	Yes	General Remarks (explain any answers if needed): Soil Map Unit Name: Udorthents, wet substratum, 0 to 2 percent slopes. Climate conditions are within the wetter than normal range.
Hydric soil present?	No	
Indicators of wetland hydrology present?	No	
Is the sampled area within a wetland?	No	If yes, optional Wetland Site ID: Upland

VEGETATION

	Tree Stratum (Plot Size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
	Total Cover:	0		
	Sapling/Shrub Stratum (Plot Size: 15 ft)			
1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
	Total Cover:	0		
	Herb Stratum (Plot Size: 5 ft)			
1.	Phalaris arundinacea	100	Yes	FACW
2.		0		
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
	Total Cover:	100		
	Woody Vine Stratum (Plot Size: 30 ft)			
1.		0		
2.		0		
	Total Cover:	0		

% Bare Ground in Herb Stratum: | % Sphagnum Moss Cover:

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

50/20 Thresholds:	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	100.00%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	X 1	0
FACW Species	100	X 2	200
FAC Species	0	X 3	0
FACU Species	0	X 4	0
UPL Species	0	X 5	0
Column Totals:	100	(A)	200 (B)
Prevalence Index = B/A =			2.00

Hydrophytic Vegetation Indicators:

No	Rapid Test for Hydrophytic Vegetation
Yes	Dominance Test is >50%
Yes	Prevalence Index ≤ 3.0 [1]
No	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
Yes	Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: 1-1 Up

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

	Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc [2]	Texture	Remarks
1.	0 - 8	7.5YR 3/1	100					silt loam	
2.	8 - 17	7.5YR 4/4	100					clay	
3.	17 - 20	7.5YR 4/2	98	7.5YR 4/4	2	C	M	loamy sand	
4.	20 - 24	N 2.5/0	100					clay loam	
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron-Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): **Type:** _____ **Depth (inches):** _____ **Hydric soil present?** No

Soil Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present? ☐ **Surface Water Depth (inches):** _____

Water table present? ☐ **Water Table Depth (inches):** _____

Saturation present? (includes capillary fringe) ☐ **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? No

Describe Recorded Data:

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections

Hydrology Remarks: Surface saturation present due to overland flow.

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WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Theo Wirth | Applicant/Owner: MPLS Parks & Recreation Board | City/County: Hennepin | State: MN | Sampling Date: 05/16/19

Investigator(s): BKB | Section: 17 | Township: 29N | Range: 24W | Sampling Point: 1-1 Wet

Land Form: Toeslope | Local Relief: Concave | Slope %: 0-3 | Soil Map Unit Name: See Summary Remarks

Subregion (LRR): M | Latitude: 44.998174 | Longitude: -93.327664 | Datum: NAD 1983

Cowardin Classification: PFO1A, PEMB/C | Circular 39 Classification: Type 1L/2/3 | Mapped NWI Classification: Upland

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

Eggers & Reed (primary): Floodplain Forest

Eggers & Reed (secondary): Fresh (Wet) Meadow

Eggers & Reed (tertiary): Shallow Marsh

Eggers & Reed (quaternary): N/A

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No Soil No Hydrology No naturally problematic?

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

Hydrophytic vegetation present? Yes

Hydric soil present? Yes

Indicators of wetland hydrology present? Yes

Is the sampled area within a wetland? Yes

General Remarks (explain any answers if needed): Soil Map Unit Name: Udorthents, wet substratum, 0 to 2 percent slopes. Climate conditions are within the wetter than normal range.

If yes, optional Wetland Site ID: Wetland 1

VEGETATION

Tree Stratum (Plot Size: 30 ft)

		Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
	Total Cover:	0		

Sapling/Shrub Stratum (Plot Size: 15 ft)

1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
	Total Cover:	0		

Herb Stratum (Plot Size: 5 ft)

1.	Phalaris arundinacea	90	Yes	FACW
2.	Typha angustifolia	10	No	OBL
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
	Total Cover:	100		

Woody Vine Stratum (Plot Size: 30 ft)

1.		0		
2.		0		
	Total Cover:	0		

% Bare Ground in Herb Stratum: 0 | % Sphagnum Moss Cover:

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

50/20 Thresholds:

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW or FAC: 100.00% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:		
OBL Species	10	X 1	10	
FACW Species	90	X 2	180	
FAC Species	0	X 3	0	
FACU Species	0	X 4	0	
UPL Species	0	X 5	0	
Column Totals:	100	(A)	190	(B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

- Yes — Rapid Test for Hydrophytic Vegetation
- Yes — Dominance Test is >50%
- Yes — Prevalence Index ≤ 3.0 [1]
- No — Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
- No — Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

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WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: 1-1 Wet

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

	Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc [2]	Texture	Remarks
1.	0 - 7	N 2.5/0	100					silty clay loam	
2.	7 - 14	N 2.5/0	95	10 YR 5/2	10	D	M	silty clay loam	
3.	14 - 25	10 YR 2/1	98	10 YR 3/3	2	C	M	loamy sand	
4.	25 - 31	10YR 2/1	88	10YR 3/3	2	C	M	loam	mucky
5.	-			10YR 5/1	10	D	M		
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☑ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron-Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): **Type:** _____ **Depth (inches):** _____ **Hydric soil present?** Yes

Soil Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present? ☐ **Surface Water Depth (inches):** _____

Water table present? ☑ **Water Table Depth (inches):** 7

Saturation present? (includes capillary fringe) ☑ **Saturation Depth (inches):** 0

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections

Hydrology Remarks:

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WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Theo Wirth | Applicant/Owner: MPLS Parks & Recreation Board | City/County: Hennepin | State: MN | Sampling Date: 05/16/19

Investigator(s): BKB | Section: 17 | Township: 29N | Range: 24W | Sampling Point: 1-2 UP

Land Form: Hillslope | Local Relief: Convex | Slope %: 1 | Soil Map Unit Name: See Summary Remarks

Subregion (LRR): M | Latitude: 44.998255 | Longitude: -93.326837 | Datum: NAD 1983

Cowardin Classification: Upland | Circular 39 Classification: Upland | Mapped NWI Classification: PFO1A

Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) | Eggers & Reed (primary): Upland

Are vegetation No Soil No Hydrology No significantly disturbed? | Are "normal circumstances" present? Yes | Eggers & Reed (secondary): N/A

Are vegetation No Soil No Hydrology No naturally problematic? | Eggers & Reed (tertiary): N/A

Eggers & Reed (quaternary): N/A

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

Hydrophytic vegetation present?	Yes	General Remarks (explain any answers if needed): Soil Map Unit Name: Muskego and Houghton soils, 0 to 1 percent slopes. Climate conditions are within the wetter than normal range.
Hydric soil present?	No	
Indicators of wetland hydrology present?	No	
Is the sampled area within a wetland?	No	If yes, optional Wetland Site ID: Upland

VEGETATION

Tree Stratum (Plot Size: 30 ft)

		Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
	Total Cover:	0		

Sapling/Shrub Stratum (Plot Size: 15 ft)

1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
	Total Cover:	0		

Herb Stratum (Plot Size: 5 ft)

1.	Phalaris arundinacea	100	Yes	FACW
2.		0		
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
	Total Cover:	100		

Woody Vine Stratum (Plot Size: 30 ft)

1.		0		
2.		0		
	Total Cover:	0		

% Bare Ground in Herb Stratum: | % Sphagnum Moss Cover:

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

50/20 Thresholds:	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	100.00%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:		
OBL Species	0	X 1	0	
FACW Species	100	X 2	200	
FAC Species	0	X 3	0	
FACU Species	0	X 4	0	
UPL Species	0	X 5	0	
Column Totals:	100	(A)	200	(B)
Prevalence Index = B/A =			2.00	

Hydrophytic Vegetation Indicators:

Yes	Rapid Test for Hydrophytic Vegetation
Yes	Dominance Test is >50%
Yes	Prevalence Index ≤ 3.0 [1]
No	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
No	Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

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WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: 1-2 UP

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

	Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc [2]	Texture	Remarks
1.	0 - 7	10YR 2/2	100					clay loam	
2.	7 - 15	7.5YR 4/4	100					clay loam	
3.	15 - 25	7.5YR 2.5/1	96	10YR 4/1	2	D		silt loam	mucky
4.	-			10YR 3/3	2	C			
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron-Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): **Type:** _____ **Depth (inches):** _____ **Hydric soil present?** No

Soil Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present? ☐ **Surface Water Depth (inches):** _____

Water table present? ☐ **Water Table Depth (inches):** _____

Saturation present? (includes capillary fringe) ☐ **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? No

Describe Recorded Data:

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections

Hydrology Remarks:

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WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Theo Wirth | Applicant/Owner: MPLS Parks & Recreation Board | City/County: Hennepin | State: MN | Sampling Date: 05/16/19

Investigator(s): BKB | Section: 17 | Township: 29N | Range: 24W | Sampling Point: 1-2 Wet

Land Form: Depression | Local Relief: Concave | Slope %: 1-4 | Soil Map Unit Name: See Summary Remarks

Subregion (LRR): M | Latitude: 44.998255 | Longitude: -93.326837 | Datum: NAD 1983

Cowardin Classification: PFO1A, PEMB/C | Circular 39 Classification: Type 1L/2/3 | Mapped NWI Classification: PFO1A

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

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No Soil No Hydrology No naturally problematic?

Eggers & Reed (primary): Floodplain Forest

Eggers & Reed (secondary): Fresh (Wet) Meadow

Eggers & Reed (tertiary): Shallow Marsh

Eggers & Reed (quaternary): N/A

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

Hydrophytic vegetation present? Yes

Hydric soil present? Yes

Indicators of wetland hydrology present? Yes

Is the sampled area within a wetland? Yes

General Remarks (explain any answers if needed): Soil Map Unit Name: Muskego and Houghton soils, 0 to 1 percent slopes. Climate conditions are within the wetter than normal range.

If yes, optional Wetland Site ID: Wetland 1

VEGETATION

Tree Stratum (Plot Size: 30 ft)		Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
	Total Cover:	0		

Sapling/Shrub Stratum (Plot Size: 15 ft)				
1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
	Total Cover:	0		

Herb Stratum (Plot Size: 5 ft)				
1.	Phalaris arundinacea	100	Yes	FACW
2.	Urtica dioica	2	No	FACW
3.		0		
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
	Total Cover:	102		

Woody Vine Stratum (Plot Size: 30 ft)				
1.		0		
2.		0		
	Total Cover:	0		

% Bare Ground in Herb Stratum:

% Sphagnum Moss Cover:

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

50/20 Thresholds:	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20.4	51
Woody Vine Stratum	0	0

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW or FAC: 100.00% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:		
OBL Species	0	X 1	0	
FACW Species	102	X 2	204	
FAC Species	0	X 3	0	
FACU Species	0	X 4	0	
UPL Species	0	X 5	0	
Column Totals:	102	(A)	204	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- No — Rapid Test for Hydrophytic Vegetation
- Yes — Dominance Test is >50%
- Yes — Prevalence Index ≤ 3.0 [1]
- No — Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
- No — Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

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WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: 1-2 Wet

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

	Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc [2]	Texture	Remarks
1.	0 - 5	10YR 2/1	100					silt loam	
2.	5 - 16	N 2.5/0						silt loam	mucky
3.	16 - 18	7.5YR 2.5/1	100					loam	peaty
4.	18 - 24	7.5YR 5/8	100					silt loam	
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron-Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): **Type:** _____ **Depth (inches):** _____ **Hydric soil present?** Yes

Soil Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present? ☐ **Surface Water Depth (inches):** _____

Water table present? ☑ **Water Table Depth (inches):** 4

Saturation present? (includes capillary fringe) ☑ **Saturation Depth (inches):** 0

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections

Hydrology Remarks:

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WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Theo Wirth | Applicant/Owner: MPLS Parks & Recreation Board | City/County: Hennipin | State: MN | Sampling Date: 05/16/19

Investigator(s): BKB | Section: 17 | Township: 29W | Range: 24N | Sampling Point: 2-1 UP

Land Form: Depression | Local Relief: Convex | Slope %: 1 | Soil Map Unit Name: See Summary Remarks

Subregion (LRR): M | Latitude: 44.997247 | Longitude: -93.326949 | Datum: NAD 1983

Cowardin Classification: Upland | Circular 39 Classification: Upland | Mapped NWI Classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) | Eggers & Reed (primary): Upland

Are vegetation No Soil No Hydrology No significantly disturbed? | Are "normal circumstances" present? Yes | Eggers & Reed (secondary): N/A

Are vegetation No Soil No Hydrology No naturally problematic? | Eggers & Reed (tertiary): N/A

Eggers & Reed (quaternary): N/A

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

Hydrophytic vegetation present?	Yes	General Remarks (explain any answers if needed):	Soil Map Unit Name: Koronis-Kingsley Complex 12 -18% slopes, eroded. Climate conditions are within the wetter than normal range.
Hydric soil present?	No		
Indicators of wetland hydrology present?	No		
Is the sampled area within a wetland?	No	If yes, optional Wetland Site ID:	Upland

VEGETATION

Tree Stratum (Plot Size: 30 ft)

		Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
	Total Cover:	0		

Sapling/Shrub Stratum (Plot Size: 15 ft)

1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
	Total Cover:	0		

Herb Stratum (Plot Size: 5 ft)

1.	Poa pratensis	70	Yes	FAC
2.	Taraxacum officinale	15	No	FACU
3.	Trifolium pratense	15	No	FACU
4.		0		
5.		0		
6.		0		
7.		0		
8.		0		
	Total Cover:	100		

Woody Vine Stratum (Plot Size: 30 ft)

1.		0		
2.		0		
	Total Cover:	0		

% Bare Ground in Herb Stratum: 0 | % Sphagnum Moss Cover:

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

50/20 Thresholds:	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW or FAC:	100.00%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:		
OBL Species	0	X 1	0	
FACW Species	0	X 2	0	
FAC Species	70	X 3	210	
FACU Species	30	X 4	120	
UPL Species	0	X 5	0	
Column Totals:	100	(A)	330	(B)
Prevalence Index = B/A =			3.30	

Hydrophytic Vegetation Indicators:

No	Rapid Test for Hydrophytic Vegetation
Yes	Dominance Test is >50%
No	Prevalence Index ≤ 3.0 [1]
No	Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
No	Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

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WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: 2-1 UP

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

	Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type [1]	Redox Features Loc [2]	Texture	Remarks
1.	0 - 4	10YR 3/2	100					silty clay loam	
2.	4 - 23	7.5YR 4/4	96	7.5YR 5/8	2	C	M	clay	fill - rocky/gravelly
3.	-			10YR4/4	2	C	M		
4.	-								
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron-Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____

Hydric soil present? No

Soil Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present? ☐ **Surface Water Depth (inches):** _____

Water table present? ☐ **Water Table Depth (inches):** _____

Saturation present? (includes capillary fringe) ☐ **Saturation Depth (inches):** _____

Indicators of wetland hydrology present? No

Describe Recorded Data:

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections

Hydrology Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Theo Wirth | Applicant/Owner: MPLS Parks & Recreation Board | City/County: Hennepin | State: MN | Sampling Date: 05/16/19

Investigator(s): BKB | Section: 17 | Township: 29 | Range: 24 | Sampling Point: 2-1 Wet

Land Form: Depression | Local Relief: Concave | Slope %: 0 | Soil Map Unit Name: See Summary Remarks

Subregion (LRR): M | Latitude: 44.997223 | Longitude: -93.32698 | Datum: NAD 1983

Cowardin Classification: PEMB | Circular 39 Classification: Type 2 | Mapped NWI Classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? No (If no, explain in remarks) | Eggers & Reed (primary): Fresh (Wet) Meadow

Are vegetation No Soil No Hydrology No significantly disturbed? | Are "normal circumstances" present? Yes | Eggers & Reed (secondary): N/A

Are vegetation No Soil No Hydrology No naturally problematic? | Eggers & Reed (tertiary): N/A

Eggers & Reed (quaternary): N/A

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

Hydrophytic vegetation present? Yes

Hydric soil present? Yes

Indicators of wetland hydrology present? Yes

Is the sampled area within a wetland? Yes

General Remarks (explain any answers if needed): Soil Map Unit Name: Koronis-Kingsley Complex 12 -18% slopes, eroded. Climate conditions are within the wetter than normal range.

If yes, optional Wetland Site ID: Wetland 2

VEGETATION

Tree Stratum (Plot Size: 30 ft)

		Absolute % Cover	Dominant Species?	Indicator Status
1.		0		
2.		0		
3.		0		
4.		0		
	Total Cover:	0		

Sapling/Shrub Stratum (Plot Size: 15 ft)

1.		0		
2.		0		
3.		0		
4.		0		
5.		0		
	Total Cover:	0		

Herb Stratum (Plot Size: 5 ft)

1.	Phalaris arundinacea	65	Yes	FACW
2.	Eleocharis obtusa	10	No	OBL
3.	Poa pratensis	5	No	FAC
4.	Carex stricta	1	No	OBL
5.		5		
6.		2		
7.		0		
8.		0		
	Total Cover:	88		

Woody Vine Stratum (Plot Size: 30 ft)

1.		0		
2.		0		
	Total Cover:	0		

% Bare Ground in Herb Stratum: | % Sphagnum Moss Cover:

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

50/20 Thresholds:

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17.6	44
Woody Vine Stratum	0	0

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW or FAC: 100.00% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:		
OBL Species	11	X 1	11	
FACW Species	65	X 2	130	
FAC Species	5	X 3	15	
FACU Species	0	X 4	0	
UPL Species	0	X 5	0	
Column Totals:	81	(A)	156	(B)

Prevalence Index = B/A = 1.93

Hydrophytic Vegetation Indicators:

- No — Rapid Test for Hydrophytic Vegetation
- Yes — Dominance Test is >50%
- Yes — Prevalence Index ≤ 3.0 [1]
- No — Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
- No — Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

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WETLAND DETERMINATION DATA FORM - Midwest Region

SOIL

Sampling Point: 2-1 Wet

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

	Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
1.	0 - 10	10YR 5/2	90	2.5YR 4/4	10	C	M	loam	mucky
2.	10 - 30	7.5YR 4/4	100					clay	fill
3.	-								
4.	-								
5.	-								
6.	-								

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

Hydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Dark Surface (S7)
- ☐ Iron-Manganese Masses (F12)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____ **Hydric soil present?** Yes

Soil Remarks: Subsoil is clay fill material.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present? ☐ **Surface Water Depth (inches):**

Water table present? ☑ **Water Table Depth (inches):** 10

Saturation present? (includes capillary fringe) ☑ **Saturation Depth (inches):** 2

Indicators of wetland hydrology present? Yes

Describe Recorded Data:

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections

Hydrology Remarks:

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Appendix B

MnRAM Wetland Management Classification Reports

Management Classification Report for Wetland 1(TW)

Theo Wirth Wetland Delineation

ID: 1

Hennepin County

Mississippi (Metro)Watershed, # 20

Corps Bank Service Area, 7

Based on the MnRAM data input from field and office review and using the classification settings as shown below, this wetland is classified as Manage 1

Functional rank of this wetland based on MnRAM data	Functional Category	Self-defined classification value settings for this management level
Moderate	Vegetative Diversity/Integrity	High
Moderate	Habitat Structure (wildlife)	High
Low	Amphibian Habitat	Moderate
Moderate	Fish Habitat	High
Moderate	Shoreline Protection	Moderate
High	Aesthetic/Cultural/Rec/Ed and Habitat	High / Moderate
Moderate	Stormwater/Urban Sensitivity and Vegetative Diversity	High / Moderate
Moderate	Wetland Water Quality and Vegetative Diversity	High / Moderate
Moderate	Characteristic Hydrology and Vegetative Diversity	High / Moderate
Moderate	Flood/Stormwater Attenuation*	-
Not Applicable	Commericial use*	High
Moderate	Downstream Water Quality*	-

The critical function that caused this wetland to rank as **Manage 1** was **Shoreline Protection**

Details of the formula for this action are shown below:

Shoreline Protection **(Q30+Q31+Q32+Q33+Q34)/5**

Question	*Value*	*Description*
30	0.5	Shoreline rooted vegetation (%cover)
31	0.1	Shoreline wetland in-water width
32	0.5	Shoreline emergent veg/erosion resistance
33	0.1	Shoreline erosion potential
34	0.5	Shoreline upslope veg/bank protection

This report was printed on: Tuesday, June 11, 2019

* The classification value settings for these functions are not adjustable

Management Classification Report for Wetland 2 (TW)

Theo Wirth Wetland Delineation

ID: 2

Hennepin County
Mississippi (Metro) Watershed, #20
Corps Bank Service Area 7

Based on the MnRAM data input from field and office review and using the classification settings as shown below, this wetland is classified as Manage 2

Functional rank of this wetland based on MnRAM data	Functional Category	Self-defined classification value settings for this management level
Low	Vegetative Diversity/Integrity	Low
Low	Habitat Structure (wildlife)	Low
Not Applicable	Amphibian Habitat	NA
Low	Fish Habitat	Low
Not Applicable	Shoreline Protection	NA
Moderate	Aesthetic/Cultural/Rec/Ed and Habitat	Low / Low
Moderate	Stormwater/Urban Sensitivity and Vegetative Diversity	- / -
Moderate	Wetland Water Quality and Vegetative Diversity	Low / Low
Low	Characteristic Hydrology and Vegetative Diversity	Low / Low
Moderate	Flood/Stormwater Attenuation*	High
Not Applicable	Commericial use*	-
Moderate	Downstream Water Quality*	High

The critical function that caused this wetland to rank as **Manage 2** was **Asthetic, Cultural, Rec, Ed and Habitat/Habitat Structure**

Details of the formula for this action are shown below:

Aesthetics/Recreation/Education/Cultural **(Q49+Q50+Q51+Q52+Q53+Q54+Q55+Q56)/8**

Question	*Value*	*Description*
49	1	Wetland visibility
50	1	Proximity to population
51	1	Public ownership
52	0.1	Public access
53	0.5	Human influence on wetland
54	0.5	Human influence on viewshed
55	0.5	Spatial buffer
56	0.1	Recreational activity potential

* The classification value settings for these functions are not adjustable

Management Classification Report for Wetland 2 (TW) **ıeo Wirth Wetland Delineation**

ID: 2

Hennepin County
Mississippi (Metro) Watershed, #20
Corps Bank Service Area 7

Maintenance of Characteristic Wildlife Habitat Str (Q3e*2+Q39+Q40+Q41+(Q23+Q24+Q25)/3+Q13+Q20)/8

Question	*Value*	*Description*
13	0.1	Outlet: hydrologic regime
20	1	Stormwater runoff
23	0.1	Buffer width
24	0.505	Adjacent area Management
25	0.505	Adjacent area diversity
39	0.1	Detritus
3e	0.1	<No Description Found>
40	0.5	Wetland interspersion/landscape
41	0.5	Wildlife barriers

This report was printed on: Wednesday, June 12, 2019

* The classification value settings for these functions are not adjustable

Appendix C

Site Photographs

Appendix C
Theo Wirth Wetland Delineation Site Photos
Hole 15 & 16 Improvements
May 16, 2019

Photo 1: Bassett Creek facing west on the NW side of the grading limits. Fringe wet meadow community begins at this location.

Photo 2: Wet meadow community within Wetland 1 located on the NW side of the grading limits. This photo is located near sample transect 1-1.

Photo 3: Wet meadow community within Wetland 1 located on the NE side of the grading limits. This photo is located near sample transect 1-2.

Photo 4: Floodplain forest community within Wetland 1 located on the NE side of the grading limits.

Photo 5: Wetland 2 is a swale that extends north toward Wetland 1 and Bassett Creek. Photo point is NE of Wetland 2 looking north.

Photo 6: North end of Wetland 2 facing NW.