

**WETLAND INVESTIGATION
CITY OF LAKE ELMO
FORMER 3M PARCEL**

**PORTION OF PARCEL 1602921240002
LAKE ELMO, WASHINGTON CO., MN**

**APRIL 16, 2021
AE JOB NO. 16349**



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EXECUTIVE SUMMARY

Anderson Engineering of Minnesota, LLC was retained to provide professional wetland services using the 1987 United States Army Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1; January 1987) and all supplemental guidance documents to identify areas meeting wetland criteria in the project area located in Lake Elmo, Washington County, Minnesota (southern two tracts of parcel 1602921240002). The area is in Section 16, Township 29 North, Range 21 West. The start of the 2021 growing season was determined active based on the presence of greater than two herbaceous species was observed in low-lying areas.

Delineated aquatic resources or, portions thereof, were identified and delineated within the project area and summarized in Table 1 and depicted in Appendix A, Figure 5.

Table 1. Summary of delineated aquatic resources, corresponding sizes, and wetland type classifications.

WETLAND	APPROXIMATE SIZE (ac) within project area	WETLAND TYPE CLASSIFICATION			MnRAM Classification
		CIRCULAR 39	COWARDIN	EGGERS & REED	
1	0.09	Type 1	PEM1A	Seasonally Flooded Basin	Manage 2
2	0.45	Type 1	PEM1Af	Seasonally Flooded Basin	Manage 2
3	0.16	Type 1	PEM1Af	Seasonally Flooded Basin	Manage 2
4	0.33	Type 2	PEM1B	Fresh Wet Meadow	Manage 2
5	0.46	Type 2	PEM1B	Fresh Wet Meadow	Manage 2
6	0.82	Type 2/5	PUBF/EM1B	Fresh Wet Meadow /Open Water	Preserve
7	0.07	Type 3/5	PUBG/EM1Cx	Shallow Marsh /Open Water	Manage 2

BACKGROUND

As requested by The City of Lake Elmo, Anderson Engineering of Minnesota, LLC completed a wetland investigation at the project area located in Lake Elmo, Washington County, Minnesota. The project area is located south of County Road 14 and east of County Road 13 and consists of the southern two tracts of parcel 1602921240002 (Appendix A, Figure 1). The area is in Section 16, Township 29 North, Range 21 West.

The wetland delineation was completed in accordance with the 1987 United States Army Corps of Engineers Wetland Delineation Manual and the published regional supplement to the Army Corps Wetland Delineation Manual, Northcentral Northeast Regional Supplement.

The purpose of this study was to identify areas meeting the technical criteria for wetlands, delineate the jurisdictional extent of the wetland basins, and classify the wetland habitats in the project area.

Fieldwork for this site investigation was completed by Alex Yellick and Dylan Kruzel on April 7, 2021. The weather was partly overcast to rain and approximately 74 degrees Fahrenheit.

METHODOLOGY

U.S. Geologic Service 7.5" Topographic Quadrangle maps, U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps, Minnesota Department of Natural Resources Public Water Inventory (PWI) maps, U.S. Department of Agriculture Natural Resources Conservation Service Soil Survey, and available aerial photographs were consulted to initially locate potential wetland habitats.

Routine on-site Determination Method was used during this investigation. In this method, the following procedures were used:

1. The vegetative community was sampled in all present strata to determine whether it met hydrophytic vegetation criteria based on the indicators identified in the Northcentral and Northeast Regional Supplement.
2. Soil pits were dug using a Dutch auger to depths of sixteen to thirty-six inches. The soil profile was noted in addition to any hydric soil characteristics.
3. Signs of wetland hydrology were noted and compared to field criteria such as depth to shallow water table and depth of soil saturation found in the soil pits.

Data from sample points were recorded on Army Corps of Engineers Northcentral and Northeast Region Wetland Determination Data Forms (Appendix B). At least one sample point transect crosses the delineated wetland edge. This transect consists of an upland sample point and a wetland sample point. Other sample points may be in areas which have one or more other wetland criteria present; where questionable conditions exist; or to verify the absence of wetland criteria. Photographs of each resource is included in the resource review summary pages.

Sample points were marked in the field with orange flags. The identified aquatic resource was marked with sequentially numbered pink flags. All sample points and the delineated aquatic resource extent were located using a Trimble Geo XH sub-meter GPS unit.

Delineated resources were evaluated using Board of Soil and Water Resource's Minnesota Routine Assessment Method version 3.2 (MnRAM). Information from desktop and field assessment was evaluated in the system and a

management classification ranging from exceptional quality to low quality is output as Preserve, Manage 1, Manage 2, and Manage 3. Resulting classifications are typically utilized in development planning.

RESOURCE REVIEW

The below described data were reviewed as part of the aquatic resource field delineation. A summary of each resource contained within the project area follows.

NATIONAL WETLANDS INVENTORY

The National Wetlands Inventory identifies two palustrine resources in the project area (Appendix A, Figure 2).

USDA – NATURAL RESOURCES CONSERVATION SERVICE SOIL SURVEY

Soil survey data for Washington County was obtained and reviewed prior to the delineation. Table 2 provides a list of the mapped soils in the project area. Figure 3 in Appendix A is a map of the soil units with percent hydric components.

Table 2. Summary of mapped soil units in the project area.

MAP UNIT SYMBOL	MAP UNIT NAME	HYDRIC STATUS	HYDRIC RATING	DRAINAGE CLASSIFICATION	PERCENT COVER
153C	Santiago silt loam, 6 to 15 percent slopes	Non-Hydric	0%	Well drained	37.7%
49B	Antigo silt loam, 2 to 6 percent slopes	Non-Hydric	0%	Well drained	13.2%
153B	Santiago silt loam, 2 to 6 percent slopes	Non-Hydric	0%	Well drained	13.0%
49C	Antigo silt loam, 6 to 15 percent slopes	Non-Hydric	0%	Well drained	10.5%
120	Brill silt loam	Predominantly Non-Hydric	5%	Moderately well drained	9.6%
264	Freeon silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	3%	Moderately well drained	5.1%
896D	Mahtomedi-Kingsley complex, 12 to 25 percent slopes	Non-Hydric	0%	Excessively drained	4.6%
49D	Antigo silt loam, 15 to 35 percent slopes	Non-Hydric	0%	Well drained	3.5%
325	Prebish loam	Predominantly Hydric	95%	Very poorly drained	1.7%
1847	Barronett silt loam, sandy substratum	Predominantly Hydric	90%	Poorly drained	0.7%
342B	Kingsley sandy loam, 2 to 6 percent slopes	Predominantly Non-Hydric	3%	Well drained	0.4%

Hydric soils are defined in the *Field Indicators of Hydric Soils in the United States: Guide for Identifying and Delineating Hydric Soils, version 8.2, 2018*; *The 1987 United States Army Corps of Engineers Wetlands Delineation Manual*; and *The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*.

MINNESOTA DEPARTMENT OF NATURAL RESOURCES PUBLIC WATER INVENTORY

The Minnesota Department of Natural Resources Public Water Inventory for Washington County identifies a specially regulated public water basin (82039900) within the project extent (Appendix A, Figure 4).

30-DAY ROLLING PRECIPITATION DATA

A review of the 30-day rolling precipitation data collected from the University of Minnesota Climatology Working Group (Appendix D) indicates that precipitation totals for the weeks prior to the site visit were within the range of average in the general project area. The overall hydrologic conditions were suitable for completing an accurate wetland determination and boundary delineation.

OFFSITE HYDROLOGY REVIEW

An offsite hydrology review was completed in accordance with U.S. Army Corps of Engineers/Board of Soil and Water Resources Guidance for Offsite Hydrology/Wetland Determination (July 2016). A total of nine investigation areas were identified based on review of aerial photos from 2003 to 2020. A total of eight aerial photos (2003, 2004, 2006, 2008, 2009, 2012, 2017, 2020) representing normal precipitation conditions were used in the analysis (Appendix E). The analysis revealed wet signatures ≥ 50 percent of normal conditions reviewed in five investigation areas (Areas C, D, E, F, G, I). This data, along with other offsite information (i.e., National Wetland Inventory, County Soil Survey) was used to inform if the secondary hydrology indicator saturation visible on aerial imagery is checked on wetland determination forms.

RESOURCE 1

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing North / Abrupt Transition to Wetland Confined to Ditch

Wetland	RESOURCE TYPE
0.09-Acre(s)	TOTAL AREA WITHIN ECB
0.1-Acre(s)	TOTAL EST. AREA
Seasonally Flooded Basin	EGGERS & REED
Type 1	CIRCULAR 39
PEM1A	COWARDIN
Manage 2	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Alnus incana</i>	Gray alder
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Typha x glauca</i>	Hybrid cattail
HYDRIC SOIL INDICATORS	
Redox Dark Surface	F6
WETLAND HYDROLOGY DETERMINATION	
Surface Water	A1
Saturation	A3
Drainage Patterns	B10
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Non-Hydric - Santiago silt loam, 2 to 6 percent slopes (153B)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	N/A

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies a ditch and the delineated edge is topography driven. The transition to upland is gradual and was determined based on a lack of hydrology and hydrophytic plant community (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource is not directly hydrologically connected to an adjacent resource.
ATYPICAL/PROBLEMATIC CONDITIONS	Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within non-hydric soil map unit; however, hydric soils are present. Field delineation identified a type 1 wetland not identified by NWI.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 1A

Up Point(s): 1B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

RESOURCE 2

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing West / Gradual Transition to Wetland

Wetland	RESOURCE TYPE
0.45-Acre(s)	TOTAL AREA WITHIN ECB
0.45-Acre(s)	TOTAL EST. AREA
Seasonally Flooded Basin	EGGERS & REED
Type 1	CIRCULAR 39
PEM1Af	COWARDIN
Manage 2	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Panicum capillare</i>	Witch grass
<i>Nasturtium officinale</i>	Watercress
HYDRIC SOIL INDICATORS	
Best Professional Judgement	BPJ
WETLAND HYDROLOGY DETERMINATION	
Surface Water	A1
High Water Table	A2
Saturation	A3
Aerial Saturation Visible	C9
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Predominantly Non-Hydric - Brill silt loam (120)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	Area C: 7 of 8 normal years with wet signatures – <i>field verification required</i>

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies low landscape position within a farmed area and the delineated edge is topography driven. The transition to upland is gradual and was determined based on a lack of hydric soil profile and hydrology (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource is not directly hydrologically connected to an adjacent resource.
ATYPICAL/PROBLEMATIC CONDITIONS	Farmed area and normal circumstances are not present. Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within predominantly non-hydric soil map unit; however, hydric soils were observed. Field delineation identified a type 1 wetland not noted by NWI.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 2A
Up Point(s): 2B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

RESOURCE 3

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing North / Gradual Transition to Wetland

Wetland	RESOURCE TYPE
0.16-Acre(s)	TOTAL AREA WITHIN ECB
0.16-Acre(s)	TOTAL EST. AREA
Seasonally Flooded Basin	EGGERS & REED
Type 1	CIRCULAR 39
PEM1Af	COWARDIN
Manage 2	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Panicum capillare</i>	Witch grass
<i>Phragmites australis</i>	Common reed
HYDRIC SOIL INDICATORS	
Redox Dark Surface	F6
WETLAND HYDROLOGY DETERMINATION	
Surface Water	A1
High Water Table	A2
Saturation	A3
Aerial Saturation Visible	C9
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Non-Hydric - Santiago silt loam, 6 to 15 percent slopes (153C)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	Area F: 5 of 8 normal years with wet signatures – <i>field verification required</i>

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies low landscape position and the delineated edge is topography driven. The transition to upland is gradual and was determined based on a lack of hydrology, hydrophytic plant community, and hydric soil profile (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource is not directly hydrologically connected to an adjacent resource.
ATYPICAL/PROBLEMATIC CONDITIONS	Area is within a farmed field and normal circumstances are not present. Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within predominantly non-hydric soil map unit; however, hydric soils were observed. Field delineation identified a type 1 wetland not noted by NWI.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 3A
Up Point(s): 3B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

RESOURCE 4

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing East / Gradual Transition to Wetland

Wetland	RESOURCE TYPE
0.33-Acre(s)	TOTAL AREA WITHIN ECB
0.33-Acre(s)	TOTAL EST. AREA
Fresh Wet Meadow	EGGERS & REED
Type 2	CIRCULAR 39
PEM1B	COWARDIN
Manage 2	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Panicum capillare</i>	Witch grass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Nasturtium officinale</i>	Watercress
HYDRIC SOIL INDICATORS	
Redox Dark Surface	F6
WETLAND HYDROLOGY DETERMINATION	
High Water Table	A2
Saturation	A3
Aerial Saturation Visible	C9
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Predominantly Non-Hydric - Freeon silt loam, 2 to 6 percent slopes (264)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	Area G: 8 of 8 normal years with wet signatures – field verification required

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies low landscape position and the delineated edge is topography driven. The transition to upland is gradual and was determined based on a lack of hydrology (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource is not directly hydrologically connected to an adjacent resource.
ATYPICAL/PROBLEMATIC CONDITIONS	Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations. 2021 growing season marked by presence of emergence of reed canary grass and other species within the basin and elsewhere.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within predominantly non-hydric soil map unit; however, hydric soils were observed. Field delineation identified a type 2 wetland not noted by NWI. VBWD MnRAM assessment mapped this resource as Manage 1; however, low habitat quality and isolated landscape position resulted in a determination of Manage 2.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 4A
Up Point(s): 4B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

RESOURCE 5

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing North / Gradual Transition to Wetland

Wetland	RESOURCE TYPE
0.46-Acre(s)	TOTAL AREA WITHIN ECB
0.46-Acre(s)	TOTAL EST. AREA
Fresh Wet Meadow	EGGERS & REED
Type 2	CIRCULAR 39
PEM1B	COWARDIN
Manage 2	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Phalaris arundinacea</i>	Reed canary grass
HYDRIC SOIL INDICATORS	
Thick Dark Surface	A12
WETLAND HYDROLOGY DETERMINATION	
High Water Table	A2
Saturation	A3
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Predominantly Hydric - Prebish loam (325)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	N/A

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies a sloped landscape position and the delineated edge is topography- and watershed catchment-driven. The transition to upland is gradual and was determined based on a lack of hydrophytic plant community and hydric soil profile (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource is not directly hydrologically connected to an adjacent resource.
ATYPICAL/PROBLEMATIC CONDITIONS	Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations. 2021 growing season marked by presence of emergence of reed canary grass and other species within the basin and elsewhere.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within predominantly hydric soil map unit and soil investigation confirmed status. Field delineation identified a type 2 wetland not noted by NWI.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 5A
Up Point(s): 5B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

RESOURCE 6

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing Northwest / Gradual Transition to Wetland

Wetland	RESOURCE TYPE
0.82-Acre(s)	TOTAL AREA WITHIN ECB
5.09-Acre(s)	TOTAL EST. AREA
Fresh Wet Meadow/Open Water	EGGERS & REED
Type 2/5	CIRCULAR 39
PUBF/EM1B	COWARDIN
Preserve	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Phalaris arundinacea</i>	Reed canary grass
HYDRIC SOIL INDICATORS	
Best Professional Judgement	BPJ
WETLAND HYDROLOGY DETERMINATION	
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Predominantly Hydric - Barronett silt loam, sandy substratum (1847)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	N/A

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies low landscape position and the delineated edge is topography driven. The transition to upland is gradual and was determined based on a lack of hydrology (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource extends offsite to the west.
ATYPICAL/PROBLEMATIC CONDITIONS	A pipeline right-of-way transects the area and soils were not investigated for safety reasons. Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations. 2021 growing season marked by presence of emergence of reed canary grass and other species within the basin and elsewhere.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within predominantly hydric soil map unit and soil investigation confirmed status. Field delineation identified a type 2/5, which disagrees with type 1/3/5 noted by NWI. Type 1/3 wetland may be present offsite.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 6A
Up Point(s): 6B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

RESOURCE 7

FIELD DELINEATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing North / Abrupt Transition to Wetland

Wetland	RESOURCE TYPE
0.07-Acre(s)	TOTAL AREA WITHIN ECB
0.07-Acre(s)	TOTAL EST. AREA
Shallow Marsh/Open Water	EGGERS & REED
Type 3/5	CIRCULAR 39
PUBG/EM1Cx	COWARDIN
Manage 2	MnRAM ²
DOMINANT HYDROPHYTIC VEGETATION	
<i>Salix fragilis</i>	Crack willow
<i>Populus tremuloides</i>	Quaking aspen
<i>Alnus incana</i>	Speckled alder
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Solidago canadensis</i>	Giant goldenrod
HYDRIC SOIL INDICATORS	
Redox Dark Surface	F6
WETLAND HYDROLOGY DETERMINATION	
High Water Table	A2
Saturation	A3
Water Stained Leaves	B9
Geomorphic Position	D2
FAC-Neutral Test	D5

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Non-Hydric - Antigo silt loam, 2 to 6 percent slopes (49B)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ³	N/A

DISCUSSION

RATIONALE FOR DETERMINATION	The wetland occupies low landscape position and the delineated edge is topography driven. The transition to upland is abrupt and was determined based on a lack of hydrology and hydric soil profile (Appendix A, Figure 5).
ASSOCIATED RESOURCES	Resource is not directly hydrologically connected to an adjacent resource.
ATYPICAL/PROBLEMATIC CONDITIONS	Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations. 2021 growing season marked by presence of emergence of reed canary grass and other species within the basin and elsewhere.
CONSISTENCY WITH DESKTOP REVIEW	Wetland was delineated within non-hydric soil map unit; however, hydric soils were observed. Field delineation identified a type 3/5 wetland and disagrees with Type 5 noted by NWI. Type 3 emergent vegetation was observed.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): 7A
Up Point(s): 7B

² Appendix E contains MnRAM output

³ Appendix F contains Aerial Photo Off-site Determination

INVESTIGATION AREA A

FIELD INVESTIGATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing Northwest / Dry Land Flow Path

Dry Land RESOURCE TYPE	
DOMINANT VEGETATION	
None	
HYDRIC SOIL INDICATORS	
None	
WETLAND HYDROLOGY DETERMINATION	
Drainage patterns Aerial Saturation Visible	B10 C9

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Predominantly Non-Hydric - Brill silt loam (120)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ²	Area D: 4 of 8 normal years with wet signatures – <i>field verification required</i>

DISCUSSION

RATIONALE FOR DETERMINATION	Aerial photo review of the investigated area revealed sufficient wet signatures to warrant further investigation. Field review indicated that an absence of hydrophytic plant community and hydric soil profile. Based on this information it was determined that the area did not meet wetland criteria and was dryland (Appendix A, Figure 5).
ATYPICAL/PROBLEMATIC CONDITIONS	Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations.
CONSISTENCY WITH DESKTOP REVIEW	The soil survey and NWI desktop findings are consistent with on-site field conditions.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource:

Wet Point(s): N/A
Up Point(s): IA-A

² Appendix F contains Aerial Photo Off-site Determination

INVESTIGATION AREA B

FIELD INVESTIGATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing South / Dry Land Swale

Dry Land RESOURCE TYPE	
DOMINANT VEGETATION	
Acer negundo Arctium minus Setaria pumila	Box elder Common burdock Yellow foxtail
HYDRIC SOIL INDICATORS	
None	
WETLAND HYDROLOGY DETERMINATION	
Surface Water	A1
High Water Table	A2
Saturation	A3
Drainage patterns	B10
Aerial Saturation Visible	C8
Geomorphic Position	D2

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Non-Hydric - Santiago silt loam, 6 to 15 percent slopes (153C)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ²	Area E: 6 of 8 normal years with wet signatures - field verification required

DISCUSSION

RATIONALE FOR DETERMINATION	Aerial photo review of the investigated area revealed sufficient wet signatures to warrant further investigation. Field review indicated that an absence of hydrophytic plant community and hydric soil profile. Based on this information it was determined that the area did not meet wetland criteria and was dryland (Appendix A, Figure 5).
ATYPICAL/PROBLEMATIC CONDITIONS	The area is a farmed field and normal circumstances are not present. Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations. The 2021 growing season was active based on the emergence of common burdock.
CONSISTENCY WITH DESKTOP REVIEW	The soil survey and NWI desktop findings are consistent with on-site field conditions.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource: Wet Point(s): N/A
Up Point(s): IA-B

² Appendix F contains Aerial Photo Off-site Determination

INVESTIGATION AREA C

FIELD INVESTIGATED 4/7/2021

FIELD INVESTIGATION CONCLUSION¹



Viewing South / Dry Land Depression

Dry Land RESOURCE TYPE	
DOMINANT VEGETATION	
<i>Panicum capillare</i>	Witch grass
HYDRIC SOIL INDICATORS	
None	
WETLAND HYDROLOGY DETERMINATION	
Geomorphic Position	D2

DESKTOP REVIEW

HYDRIC RATING - SOIL UNIT(S)	Non-Hydric - Antigo silt loam, 6 to 15 percent slopes (49C)
NATIONAL WETLAND INVENTORY	N/A
PUBLIC WATER INVENTORY	N/A
AERIAL PHOTO OFFSITE DETERMINATION ²	Area I: 3 of 8 normal years with wet signatures – <i>field verification required</i>

DISCUSSION

RATIONALE FOR DETERMINATION	Aerial photo review of the investigated area revealed sufficient wet signatures to warrant further investigation. Field review indicated that an absence of hydric soil profile and wetland hydrology. Based on this information it was determined that the area did not meet wetland criteria and was dryland (Appendix A, Figure 5).
ATYPICAL/PROBLEMATIC CONDITIONS	The area is a farmed field and normal circumstances are not present. Review of antecedent precipitation on this day was normal and field conditions were adequate for reasonable vegetation and hydrology determinations.
CONSISTENCY WITH DESKTOP REVIEW	The soil survey and NWI desktop findings are consistent with on-site field conditions.
POST-TEP REVIEW ADJUSTMENT	N/A

¹ Appendix B contains wetland determination data forms supporting this investigated resource:

Wet Point(s): N/A
Up Point(s): IA-C

² Appendix F contains Aerial Photo Off-site Determination

CONCLUSION

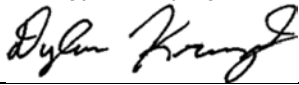
A total of seven wetlands, or portions thereof, were identified and delineated within the project area and in accordance with the 1987 United States Army Corps of Engineers Wetland Delineation Manual.

The wetlands in the project area may be regulated by several agencies at the local, state, and/or federal level. Activities which may potentially impact wetlands should be discussed in advance with the appropriate regulating agency regarding potential permit requirements. The Local Government Unit (LGU) responsible for implementing the Minnesota Wetland Conservation Act at this project location is Valley Branch Watershed District (District).

The District may require vegetated buffers and setbacks around all regulated wetland areas. Wetland buffers must meet the standards specified by the District for any project that is regulated under the Wetland Conservation Act.

This wetland investigation meets the standards and criteria described in the 1987 United States Army Corps of Engineers Wetland Delineation Manual and all applicable subsequent guidance for an on-site determination. The results reflect the conditions present at the time of the delineation.

I certify that I performed the field analysis and/or wrote the report for this wetland determination.

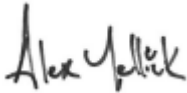


Dylan Kruzel
Environmental Scientist

April 16, 2021

Date

I certify that I performed the field analysis and/or wrote the report for this wetland determination.



Alex Yellick
Sr. Environmental Scientist
MN Certified Wetland Delineator #1354

April 16, 2021

Date

I certify that I performed the field analysis and/or reviewed work completed by above staff.



Benjamin J. Hodapp
Environmental Services Manager
MN Certified Wetland Delineator #1016

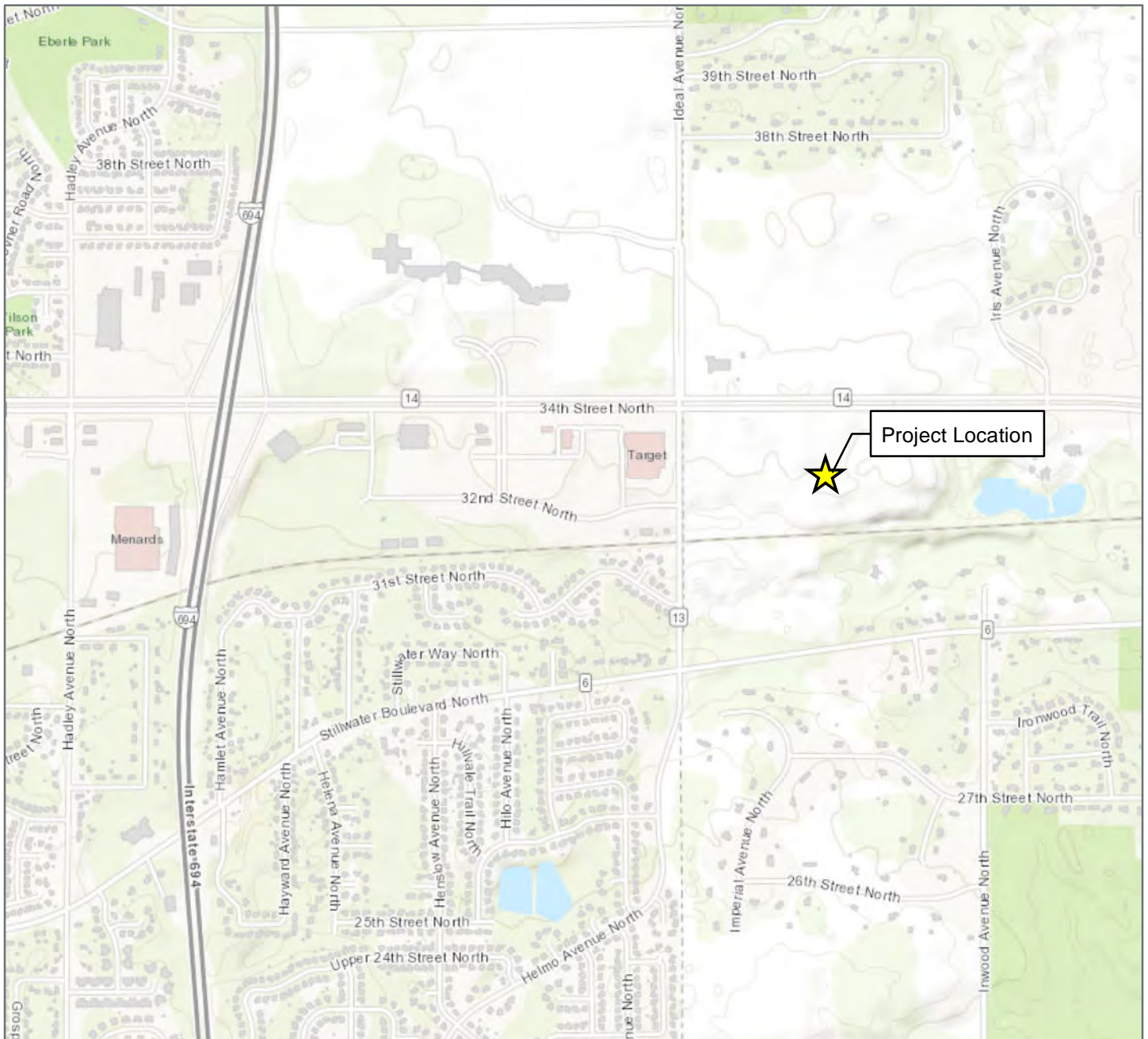
April 16, 2021

Date



Appendix A

FIGURES



Legend

 Project Location

PID: 163-160292124002

Project No: 16349

Date: 3.4.2021

1 inch = 0.25 miles 

0 0.125 0.25 0.5



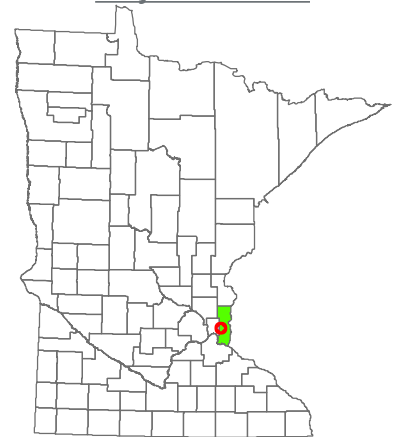
Miles



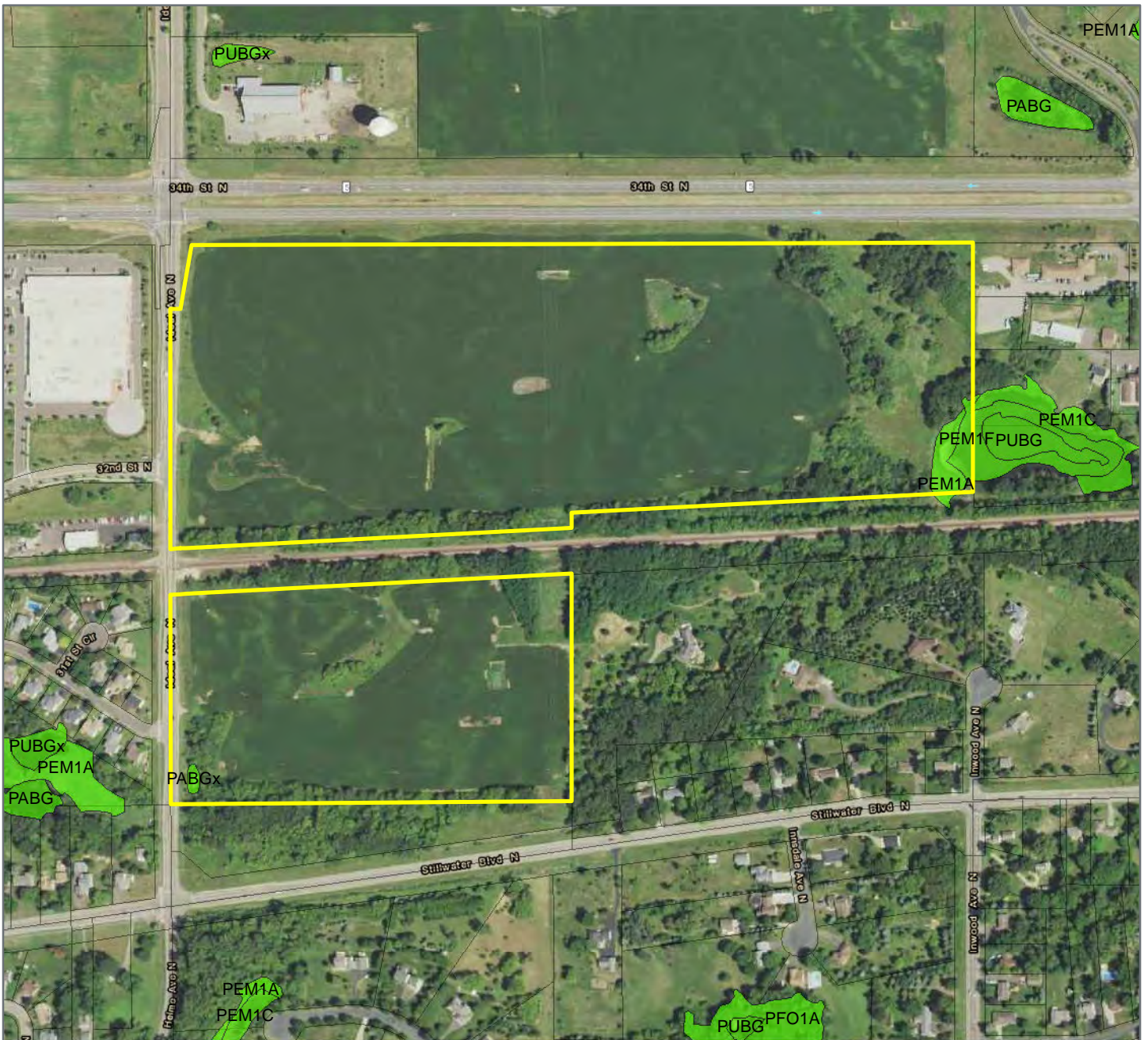
ANDERSON

13605 1st Ave N #100, Plymouth, MN 55441
 P 763.412.4000 F 763.412.4090 ae-mn.com

Project Location



City of Lake Elmo
 Washington County, MN



Legend

- Project Parcels
- Washington Co. Parcels
- National Wetlands Inventory

PID: 163-1602921240002

Project No: 16349

Date: 3.4.2021

1 inch = 500 feet

0 250 500 1,000



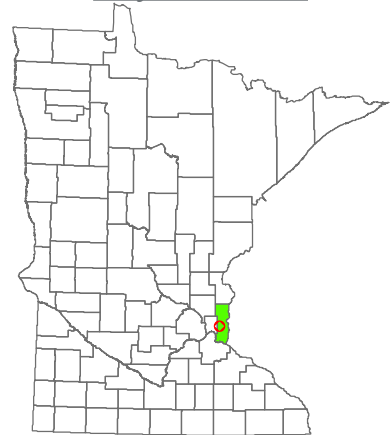
Feet



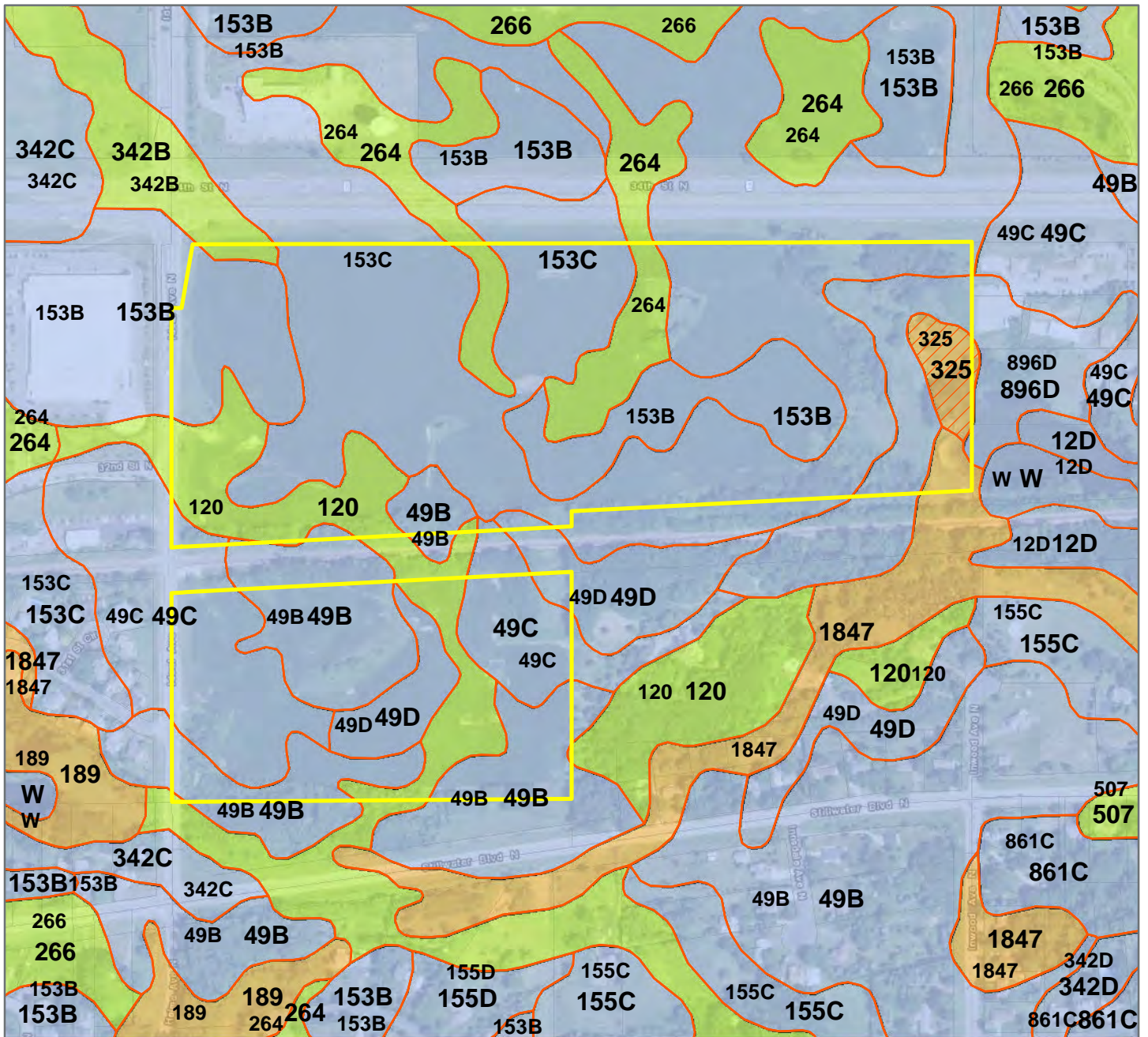
ANDERSON

13605 1st Ave N #100, Plymouth, MN 55441
 P 763.412.4000 F 763.412.4090 ae-mn.com

Project Location



City of Lake Elmo
 Washington County, MN



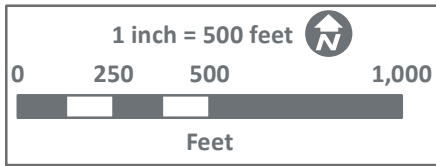
Legend

- Project Parcels
- Washington Co. Parcels

Hydric Rating by Map Unit

- 0% Hydric Components
- 1-32% Hydric Components
- 33-65% Hydric Components
- 66-99% Hydric Components
- 100% Hydric Components

PID: 163-1602921240002
 Project No: 16349
 Date: 3.4.2021



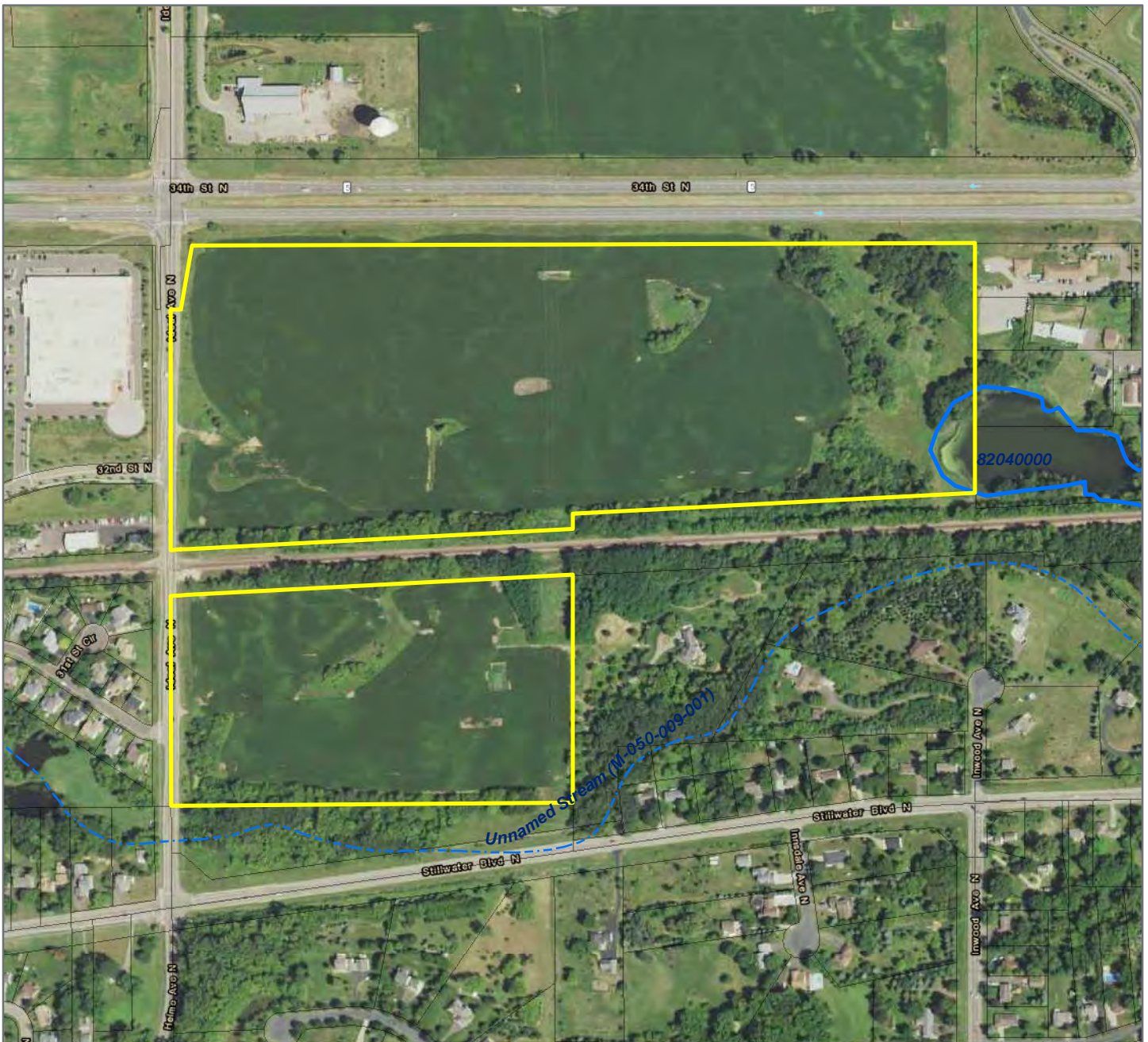
ANDERSON

13605 1st Ave N #100, Plymouth, MN 55441
 P 763.412.4000 F 763.412.4090 ae-mn.com

Project Location

City of Lake Elmo
 Washington County, MN

SOURCE: MnDNR, USDA, ESRI, TIGER, Bing, Washington Co., Anderson Engineering



Legend

- Project Parcels
- Washington Co. Parcels
- MN DNR Inventoried Public Waterbasin
- MN DNR Inventoried Public Watercourse

PID: 163-1602921240002

Project No: 16349

Date: 3.4.2021

1 inch = 500 feet



0 250 500 1,000



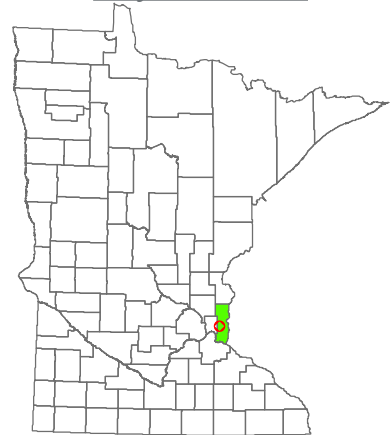
Feet



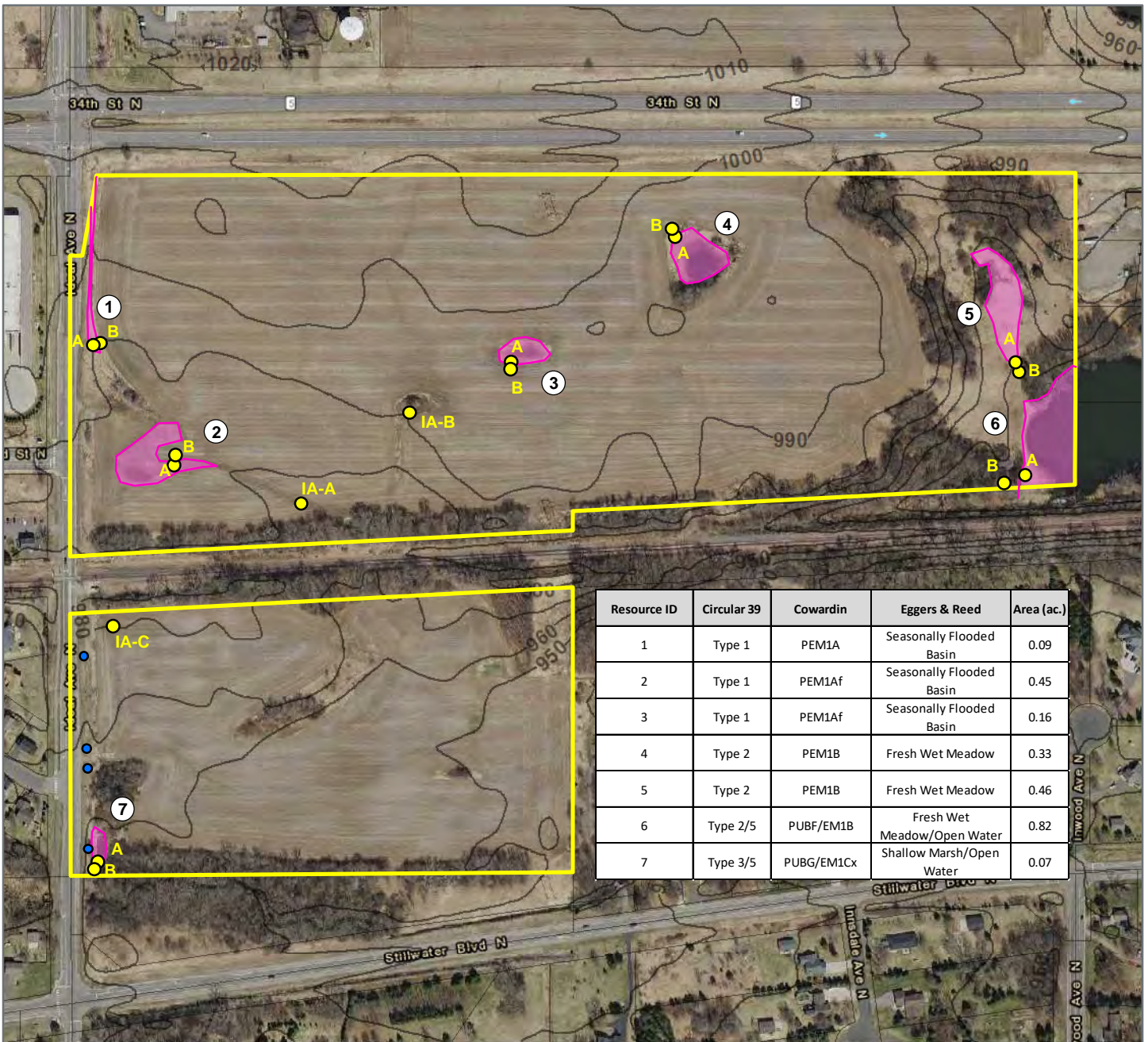
ANDERSON

13605 1st Ave N #100, Plymouth, MN 55441
 P 763.412.4000 F 763.412.4090 ae-mn.com

Project Location



City of Lake Elmo
 Washington County, MN



Resource ID	Circular 39	Cowardin	Eggers & Reed	Area (ac.)
1	Type 1	PEM1A	Seasonally Flooded Basin	0.09
2	Type 1	PEM1Af	Seasonally Flooded Basin	0.45
3	Type 1	PEM1Af	Seasonally Flooded Basin	0.16
4	Type 2	PEM1B	Fresh Wet Meadow	0.33
5	Type 2	PEM1B	Fresh Wet Meadow	0.46
6	Type 2/5	PUBF/EM1B	Fresh Wet Meadow/Open Water	0.82
7	Type 3/5	PUBG/EM1Cx	Shallow Marsh/Open Water	0.07

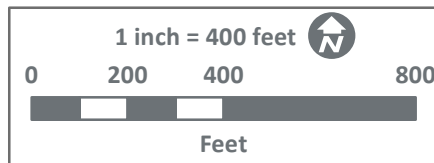
Legend

- Project Parcels
- Washington Co. Parcels
- Wetland Field Delineated 4/7/2021
- Sample Point
- Culvert

PID: 163-1602921240002

Project No: 16349

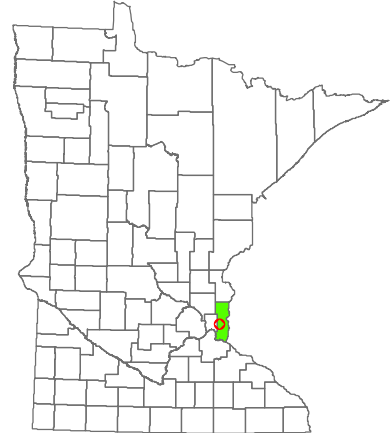
Date: 4.9.2021



ANDERSON

13605 1st Ave N #100, Plymouth, MN 55441
 P 763.412.4000 F 763.412.4090 ae-mn.com

Project Location



City of Lake Elmo
 Washington County, MN

Appendix B

ROUTINE ON-SITE DETERMINATION METHOD DATASHEETS

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ 1A
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till plain Local relief (concave, convex, none): _____ Concave Slope (%): _____ 0
 Subregion (LRR or MLRA): _____ Lat: _____ 44.99607415 Long: _____ -92.94388786 Datum: _____ WGS 84
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Seasonally flooded basin, type1, PEM1A, wetland in a roadside ditch that transitions to down gradient erosional feature.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	--

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 2 1A

Tree Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Alnus</i> / Alder	5	Yes	
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>5</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Herb Stratum (Plot size: <u>5</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary gras	95	Yes	FACW
2. <i>Typha xglauca</i> / Hybrid cattail	5	No	OBL
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>100</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	<u>0</u>	= 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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>5</u>	x 1 = <u>5</u>
FACW species <u>95</u>	x 2 = <u>190</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>195</u> (B)
Prevalence Index = B/A = <u>1.95</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index ≤3.0¹

4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators 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

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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100					Loam	
4-16	10YR 6/2	80	10YR 5/6	20	C	M	Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- 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)

Indicators for Problematic Hydric Soils³:

- 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)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 _____ City/County: _____ Lake Elmo/Washington County _____ Sampling Date: _____ 04/07/2021 _____
 Applicant/Owner: _____ City of Lake Elmo _____ State: _____ MN _____ Sampling Point: _____ 1B _____
 Investigator(s): _____ Alex Yellick, Dylan Kruzel _____ Section, Township, Range: _____ S16, T29N, R21W _____
 Landform (hillslope, terrace, etc): _____ Till Plain - TS _____ Local relief (concave, convex, none): _____ Concave _____ Slope (%): _____ 1 _____
 Subregion (LRR or MLRA): _____ K _____ Lat: _____ 44.99609207 _____ Long: _____ -92.94381598 _____ Datum: _____ WGS 84 _____
 Soil Map Unit Name: _____ 153B _____ NWI classification: _____ None _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Sampled area is located within a vegetated erosional rill. Hydrology met due to recent rainfall. Area is determined dryland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): _____	0	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): _____	0	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): _____	0	

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

Remarks:
 Recent rainfall resulted in ponding

VEGETATION - Use scientific names of plants.

Sampling Point: 1B

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	<u>90</u>	<u>Yes</u>	<u>FACU</u>	
2.	<u>10</u>	<u>No</u>	<u>FACW</u>	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>90</u>	x 4 = <u>360</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>380</u> (B)
Prevalence Index = B/A = <u>3.8</u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input type="checkbox"/> 2 - Dominance Test is >50%	
<input type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	

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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100					Loam	
4-10	10YR 4/4	100					Loam	
10-24	10YR 3/2	60	10YR 4/4	40	C	M	Loam	Distinct redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) **(LRR R, MLRA 149B)**

- Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- 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)

Indicators for Problematic Hydric Soils³:

- 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)**
- Dark Surface (S7) **(LRR K, L)**
- Polyvalue Below Surface (S8) **(LRR K, L)**
- Thin Dark Surface (S9) **(LRR K, L)**
- Iron-Manganese Masses (F12) **(LRR K, L, R)**
- Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ 2A
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till Plain - TS Local relief (concave, convex, none): _____ Concave Slope (%): _____ 0
 Subregion (LRR or MLRA): _____ K Lat: _____ 44.9952239 Long: _____ -92.94305361 Datum: _____ WGS 84
 Soil Map Unit Name: _____ 153C NWI classification: _____ None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Farmed seasonally flooded basin (type 1, PEM1Af) located at the mouth of an erosional rill. Field appears the have been left fallow the year prior.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Offsite Area C: 88% wet signatures with adjacent mapped hydric soils and no NWI. Field verification supports saturation visible on aerial imagery (C9).

VEGETATION - Use scientific names of plants.

Sampling Point: 2A

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	<u>95</u>	<u>Yes</u>	<u>FAC</u>	<u><i>Panicum capillare</i> / Old witch grass</u>
2.	<u>5</u>	<u>No</u>	<u>OBL</u>	<u><i>Nasturtium officinale</i> / Watercress, Water cress</u>
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>5</u>	x 1 = <u>5</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>95</u>	x 3 = <u>285</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>290</u> (B)
Prevalence Index = B/A = <u>2.9</u>	
Hydrophytic Vegetation Indicators:	
<u> </u> 1 - Rapid Test for Hydrophytic Vegetation	
<u>X</u> 2 - Dominance Test is >50%	
<u>X</u> 3 - Prevalence Index ≤3.0 ¹	
<u> </u> 4 - Morphological Adaptations (Provide supporting 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 <u>X</u> No <u> </u>	

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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24	10YR 2/2	100					Loam	

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

- | | | |
|---|--|--|
| Hydric Soil Indicators: | | Indicators for Problematic Hydric Soils³: |
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input checked="" type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: Hydrophytic vegetation and hydrology criteria are met. Sampled area is adjacent to predominantly hydric soil unit. Soil profile is assumed hydric based on BPJ.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ 2B
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till Plain - FS Local relief (concave, convex, none): _____ Convex Slope (%): _____ 1
 Subregion (LRR or MLRA): _____ K Lat: _____ 44.99529339 Long: _____ -92.94309336 Datum: _____ WGS 84
 Soil Map Unit Name: _____ 153C NWI classification: _____ None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Field appears the have been left fallow the year prior. Corn was the prior year crop rotation.

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)
- 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 Depth (inches): _____
 Water Table Present? Yes _____ No Depth (inches): _____
 Saturation Present? Yes _____ No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 2B

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	<u>5</u>	<u>Yes</u>	<u>FAC</u>	
2.	<u>5</u>	<u>Yes</u>	<u>FACU</u>	
3.	<u>5</u>	<u>Yes</u>	<u>FAC</u>	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>15</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

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

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

 Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>15</u> (A)	<u>50</u> (B)
Prevalence Index = B/A = <u>3.33</u>	

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index ≤3.0¹
 4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators 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

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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 2/2	100					Loam	
16-24	10YR 2/2	80	7.5YR 3/4	20			Loam	Distinct redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- 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)

Indicators for Problematic Hydric Soils³:

- 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)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: MN Sampling Point: 3A
 Investigator(s): Alex Yellick, Dylan Kruzel Section, Township, Range: S16, T29N, R21W
 Landform (hillslope, terrace, etc): Till Plain - TS Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): K Lat: 44.99592319 Long: -92.93966066 Datum: WGS 84
 Soil Map Unit Name: 153C NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Farmed seasonally flooded basin (type 1, PEM1Af). Field appears to have been left fallow the year prior. Corn was the prior year crop rotation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 1 Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 0 Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Offsite Area F: 63% wet signatures with adjacent mapped hydric soils and no NWI. Field verification supports saturation visible on aerial imagery (C9).

VEGETATION - Use scientific names of plants.

Sampling Point: 3A

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	<u>80</u>	Yes	FACW	<u>Phragmites australis ssp. americanus / American common reed</u>
2.	<u>20</u>	Yes	FAC	<u>Panicum capillare / Old witch grass</u>
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>80</u>	x 2 = <u>160</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>220</u> (B)
Prevalence Index = B/A = <u>2.2</u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
<input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100					Sandy Loam	
4-12	10YR 2/2	98	10YR 3/4	2	C	M	Sandy Loam	Distinct redox
12-16	7.5YR 5/2	80	7.5YR 4/4	20	C	M	Sandy Loam	Distinct redox

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
--	---	---

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
---	--

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: Lake Elmo/Washington County Sampling Date: 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: MN Sampling Point: 3B
 Investigator(s): Alex Yellick, Dylan Kruzel Section, Township, Range: S16, T29N, R21W
 Landform (hillslope, terrace, etc): Till Plain - FS Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR or MLRA): K Lat: 44.9959174 Long: -92.93966369 Datum: WGS 84
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Area determined to be dry land. Field appears to have been left fallow the year prior. Corn was the prior year crop rotation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>16</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>13</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
---	--

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

Remarks:
 Hydrology criteria not met.

VEGETATION - Use scientific names of plants.

Sampling Point: 3B

Tree Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Herb Stratum (Plot size: <u>5</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)
Prevalence Index = B/A = <u>0.0</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index ≤3.0¹
 - 4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))
- ¹Indicators 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

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

Sample location in previously farmed agriculture field.

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 2/2	100					Sandy Loam	
16-24	7.5YR 5/2	80	7.5YR 4/6	20	C	M	Sandy Loam	Prominent redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- 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)

Indicators for Problematic Hydric Soils³:

- 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)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:
 Hydric soil criteria not met.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: MN Sampling Point: 4A
 Investigator(s): Alex Yellick, Dylan Kruzel Section, Township, Range: S16, T29N, R21W
 Landform (hillslope, terrace, etc): Till Plain - TS Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): K Lat: 44.99693275 Long: -92.9380136 Datum: WGS 84
 Soil Map Unit Name: 264 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) Fresh Wet Meadow (Type 2, PEM1B)	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 10 Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Offsite Area G: 100% wet signatures with adjacent mapped hydric soils and no NWI. Field verification supports saturation visible on aerial imagery (C9).	

VEGETATION - Use scientific names of plants.

Sampling Point: 4A

Tree Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Herb Stratum (Plot size: <u>5</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary gras	95	Yes	FACW
2. <i>Ambrosia artemisiifolia</i> / Annual ragweed, Common ragweec	5	No	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>100</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>95</u>	x 2 = <u>190</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>210</u> (B)
Prevalence Index = B/A = <u>2.1</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index ≤3.0¹
- 4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators 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

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

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: Lake Elmo/Washington County Sampling Date: 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: MN Sampling Point: 4B
 Investigator(s): Alex Yellick, Dylan Kruzel Section, Township, Range: S16, T29N, R21W
 Landform (hillslope, terrace, etc): Till Plain - FS Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR or MLRA): K Lat: 44.99693275 Long: -92.9380136 Datum: WGS 84
 Soil Map Unit Name: 264 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Wetland hydrology is absent. Area determined to be dry land.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1)
<input type="checkbox"/> High Water Table (A2)
<input type="checkbox"/> Saturation (A3)
<input type="checkbox"/> Water Marks (B1)
<input type="checkbox"/> Sediment Deposits (B2)
<input type="checkbox"/> Drift Deposits (B3)
<input type="checkbox"/> Algal Mat or Crust (B4)
<input type="checkbox"/> Iron Deposits (B5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Other (Explain in Remarks) |
|--|---|

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes No _____ Depth (inches): 14
 Saturation Present? Yes No _____ Depth (inches): 13
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

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

Remarks:
 Wetland hydrology not met.

VEGETATION - Use scientific names of plants.

Sampling Point: 4B

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	90	Yes	FACW	<i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary gras
2.	10	No	UPL	<i>Abutilon</i> / Indian mallow
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>90</u>	x 2 = <u>180</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>100</u> (A)	<u>230</u> (B)
Prevalence Index = B/A = <u>2.3</u>	
Hydrophytic Vegetation Indicators:	
<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
<input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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

SOIL

Sampling Point: 4B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 3/2	100					Loam	
6-24	7.5YR 3/2	80	7.5YR 4/4	20	C	M	Loam	Distinct redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- 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)

Indicators for Problematic Hydric Soils³:

- 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)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 _____ City/County: _____ Lake Elmo/Washington County _____ Sampling Date: _____ 04/07/2021 _____
 Applicant/Owner: _____ City of Lake Elmo _____ State: _____ MN _____ Sampling Point: _____ 5A _____
 Investigator(s): _____ Alex Yellick, Dylan Kruzel _____ Section, Township, Range: _____ S16, T29N, R21W _____
 Landform (hillslope, terrace, etc): _____ Till Plain - TS _____ Local relief (concave, convex, none): _____ Concave _____ Slope (%): _____ 0 _____
 Subregion (LRR or MLRA): _____ K _____ Lat: _____ 44.99599742 _____ Long: _____ -92.93452277 _____ Datum: _____ WGS 84 _____
 Soil Map Unit Name: _____ 325 _____ NWI classification: _____ None _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Area is downgradient of an erosional gully. Areas of higher elevation appear steep and do not support wetland hydrology. Non-hydrophytic species are additionally present at higher elevations.
 Investigated wetland is a fresh wet meadow (Type 2, PEM1B).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	--

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 5A

Tree Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Herb Stratum (Plot size: <u>5</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary gras	100	Yes	FACW
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>100</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>100</u>	x 2 = <u>200</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>200</u> (B)
Prevalence Index = B/A = <u>2.0</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index ≤3.0¹

4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators 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

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

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24	10YR 2/1	100					Loam	
24-32	10YR 6/1	80	10YR 4/6	20	C	M	Sand	Prominent redox

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			
<input type="checkbox"/> Sandy Redox (S5)			
<input type="checkbox"/> Stripped Matrix (S6)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)			

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
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Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ 5B
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till Plain - FS Local relief (concave, convex, none): _____ None Slope (%): _____ 5
 Subregion (LRR or MLRA): _____ K Lat: _____ 44.99588185 Long: _____ -92.93448701 Datum: _____ WGS 84
 Soil Map Unit Name: _____ 325 NWI classification: _____ None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Sample point is a hill slope that does not support hydrophytic community or wetland hydrology. Area was determined to be dry land.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 5B

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u> 30 </u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u> 0 </u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u> 15 </u>)				
1.	30	Yes	FAC	
2.				
3.				
4.				
5.				
6.				
7.				
	<u> 30 </u>	= Total Cover		
Herb Stratum (Plot size: <u> 5 </u>)				
1.	90	Yes	FACU	
2.	5	No	UPL	
3.	5	No	FACU	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u> 100 </u>	= Total Cover		
Woody Vine Stratum (Plot size: <u> 30 </u>)				
1.				
2.				
3.				
4.				
	<u> 0 </u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u> 1 </u> (A)
Total Number of Dominant Species Across All Strata:	<u> 2 </u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u> 50.0 </u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u> 0 </u>	x 1 = <u> 0 </u>
FACW species <u> 0 </u>	x 2 = <u> 0 </u>
FAC species <u> 30 </u>	x 3 = <u> 90 </u>
FACU species <u> 95 </u>	x 4 = <u> 380 </u>
UPL species <u> 5 </u>	x 5 = <u> 25 </u>
Column Totals: <u> 130 </u> (A)	<u> 495 </u> (B)
Prevalence Index = B/A = <u> 3.81 </u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input type="checkbox"/> 2 - Dominance Test is >50%	
<input type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	

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

SOIL

Sampling Point: 5B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/1	100					Loam	
14-16	10YR 4/2	90	7.5YR 4/3	10	C	M	Loam	Faint redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) **(LRR R, MLRA 149B)**

- Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- 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)

Indicators for Problematic Hydric Soils³:

- 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)**
- Dark Surface (S7) **(LRR K, L)**
- Polyvalue Below Surface (S8) **(LRR K, L)**
- Thin Dark Surface (S9) **(LRR K, L)**
- Iron-Manganese Masses (F12) **(LRR K, L, R)**
- Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____ Rock _____
 Depth (inches): _____ 16 _____

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: Lake Elmo/Washington County Sampling Date: 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: MN Sampling Point: 6A
 Investigator(s): Alex Yellick, Dylan Kruzel Section, Township, Range: S16, T29N, R21W
 Landform (hillslope, terrace, etc): Till Plain - TS Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR or MLRA): K Lat: 44.99515183 Long: -92.93434397 Datum: WGS 84
 Soil Map Unit Name: 1847 NWI classification: PUBG/EM1F/C/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) Fresh Wet Meadow/Open water (Type 2/5, PUBF/EM/1B). PWI Basin 82040000	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	--

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 6A

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	<u>100</u>	<u>Yes</u>	<u>FACW</u>	<u><i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary gras</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>100</u>	x 2 = <u>200</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>200</u> (B)
Prevalence Index = B/A = <u>2.0</u>	
Hydrophytic Vegetation Indicators:	
<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
<input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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

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

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

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

- | | | |
|---|---|---|
| <p>Hydric Soil Indicators:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | <ul style="list-style-type: none"> <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) | <p>Indicators for Problematic Hydric Soils³:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input checked="" type="checkbox"/> Other (Explain in Remarks) |
|---|---|---|

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

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____</p>
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Remarks: Active pipeline alignment was not sampled due to safety concerns. Soil presumed hydric based on best professional judgement and guidance from the 1987 COE manual step 12 for when onsite inspection is necessary in areas equal to or less than 5 acres in size. Observed vegetation was dominated by FACW species and the wetland boundary was abrupt.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 _____ City/County: _____ Lake Elmo/Washington County _____ Sampling Date: _____ 04/07/2021 _____
 Applicant/Owner: _____ City of Lake Elmo _____ State: _____ MN _____ Sampling Point: _____ 6B _____
 Investigator(s): _____ Alex Yellick, Dylan Kruzel _____ Section, Township, Range: _____ S16, T29N, R21W _____
 Landform (hillslope, terrace, etc): _____ Till Plain - FS _____ Local relief (concave, convex, none): _____ Concave _____ Slope (%): _____ 3 _____
 Subregion (LRR or MLRA): _____ K _____ Lat: _____ 44.9950853 _____ Long: _____ -92.93465647 _____ Datum: _____ WGS 84 _____
 Soil Map Unit Name: _____ 1847 _____ NWI classification: _____ None _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
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Remarks: (Explain alternative procedures here or in a separate report.)
 Sample point is a hill slope that does not support wetland hydrology. Area was determined to be dry land.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 6B

Tree Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Acer negundo</i> / Boxelder, Box elder	30	Yes	FAC
2. <i>Populus tremuloides</i> / Quaking aspen	15	Yes	FAC
3. <i>Populus deltoides</i> / Eastern cottonwood	10	No	FAC
4. <i>Salix fragilis</i> / Crack willow	10	No	FACW
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>65</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Rhamnus cathartica</i> / European buckthorn	40	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>40</u>	= Total Cover	

Herb Stratum (Plot size: <u>5</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Alliaria petiolata</i> / Garlic-mustard	25	Yes	FACU
2. <i>Plantago major</i> / Common plantain	5	No	FACU
3. <i>Geum aleppicum</i> / Aleppo avens, Aleppo or yellow avens	5	No	FAC
4. <i>Arctium minus</i> / Common burdock	5	No	FACU
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>40</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species <u>0</u>	x 1 =	<u>0</u>
FACW species <u>10</u>	x 2 =	<u>20</u>
FAC species <u>100</u>	x 3 =	<u>300</u>
FACU species <u>35</u>	x 4 =	<u>140</u>
UPL species <u>0</u>	x 5 =	<u>0</u>
Column Totals: <u>145</u>	(A)	<u>460</u> (B)
Prevalence Index = B/A =		<u>3.17</u>

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index ≤3.0¹
- 4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators 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

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

Quaking aspen (FACU) was determined FAC based on BWSR guidance for LRR K.

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					Sand Silt Loam	
4-6	10YR 5/2	60	10YR 4/6	40	C	M	Sand Silt Loam	Prominent redox
6-16	10YR 2/2	98	10YR 3/3	2			Sand Silt Loam	Faint redox
16-24	10YR 2/2	100					Sandy silt loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) **(LRR R, MLRA 149B)**

- Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- 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)

Indicators for Problematic Hydric Soils³:

- 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)**
- Dark Surface (S7) **(LRR K, L)**
- Polyvalue Below Surface (S8) **(LRR K, L)**
- Thin Dark Surface (S9) **(LRR K, L)**
- Iron-Manganese Masses (F12) **(LRR K, L, R)**
- Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ 7A
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till Plain - TS Local relief (concave, convex, none): _____ Concave Slope (%): _____ 0
 Subregion (LRR or MLRA): _____ K Lat: _____ 44.99231533 Long: _____ -92.94386203 Datum: _____ WGS 84
 Soil Map Unit Name: _____ 49B NWI classification: _____ PABGx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Shallow Marsh/Open Water (Type 3/5, PUBG/EM1Cx). Area appears to be a constructed stormwater retention basin. A wooden backstop structure is south of the wetland. No physical connection to the offsite south adjacent tributary was observed. A culvert outlet is present in the wetland along the west boundary. The culvert appears to outlet hydrology from west adjacent wetland opposite of Ideal Avenue North.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 4 Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	--

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 7A

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1. <i>Populus tremuloides</i> / Quaking aspen	15	Yes	FAC	
2. <i>Salix fragilis</i> / Crack willow	15	Yes	FACW	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	<u>30</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. <i>Alnus incana ssp. rugosa</i> / Speckled alder	20	Yes	FACW	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	<u>20</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1. <i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary grass	20	Yes	FACW	
2. <i>Solidago gigantea</i> / Smooth goldenrod	20	Yes	FACW	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>40</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>5</u> (A)
Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>75</u>	x 2 = <u>150</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>90</u> (A)	<u>195</u> (B)
Prevalence Index = B/A = <u>2.17</u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
<input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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

Quaking aspen (FACU) was determined FAC based on BWSR guidance for LRR K.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ 7B
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till Plain - FS Local relief (concave, convex, none): _____ None Slope (%): _____ 2
 Subregion (LRR or MLRA): _____ K Lat: _____ 44.99231533 Long: _____ -92.94386203 Datum: _____ WGS 84
 Soil Map Unit Name: _____ 49B NWI classification: _____ None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
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Remarks: (Explain alternative procedures here or in a separate report.)
 Wetland hydrology and hydric soils are not present. Area was determined dry land.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: 7B

Tree Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Salix fragilis</i> / Crack willow	15	Yes	FACW
2. <i>Populus tremuloides</i> / Quaking aspen	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	<u>30</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Alnus incana ssp. rugosa</i> / Speckled alder	20	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	<u>20</u>	= Total Cover	

Herb Stratum (Plot size: <u>5</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i> / Reed canarygrass, Reed canary gras	20	Yes	FACW
2. <i>Solidago altissima</i> / Canada goldenrod	10	Yes	FACU
3. <i>Taraxacum officinale ssp. ceratophorum</i> / Common dandelio	5	No	FACU
4. <i>Alliaria petiolata</i> / Garlic-mustard	5	No	FACU
5. <i>Glechoma hederacea</i> / Ground ivy	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	<u>45</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute %Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	<u>0</u>	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>55</u>	x 2 = <u>110</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>25</u>	x 4 = <u>100</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95</u> (A)	<u>255</u> (B)
Prevalence Index = B/A = <u>2.68</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index ≤3.0¹
- 4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators 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

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

Quaking aspen (FACU) was determined FAC based on BWSR guidance for LRR K.

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/4	100					Sandy Loam	

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

- | | |
|---|--|
| Hydric Soil Indicators: | Indicators for Problematic Hydric Soils³: |
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| | <input type="checkbox"/> Red Parent Material (F21) |
| | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed): Type: _____ Rock _____ Depth (inches): _____ 8 _____	Hydric Soil Present? Yes _____ No <u> X </u>
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Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: MN Sampling Point: IA-A
 Investigator(s): Alex Yellick, Dylan Kruzel Section, Township, Range: S16, T29N, R21W
 Landform (hillslope, terrace, etc): Till Plain - BS Local relief (concave, convex, none): None Slope (%): 3
 Subregion (LRR or MLRA): K Lat: 44.9 Long: -92.9 Datum: WGS 84
 Soil Map Unit Name: 120 NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Field appears to have been left fallow the year prior. Corn was the prior year crop rotation. Sample point is a hill slope that does not support hydric soils. Area is an erosional rill and was determined to be dry land.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Offsite Area D: 50% wet signatures with mapped predominantly non-hydric soils and no NWI. Field verification supports saturation visible on aerial imagery (C9).

VEGETATION - Use scientific names of plants.

Sampling Point: IA-A

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)
Prevalence Index = B/A = <u>0.0</u>	

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index ≤3.0¹
 4 - Morphological Adaptations (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

¹Indicators 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: (Explain alternative procedures here or in a separate report.)

A sample area an unvegetated fallow farm field. Litter indicates the prior rotation was corn crop. Wetland hydrology and hydric soils are not present. Area is not thought to support a predominance of hydrophytic vegetation.

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/3	100					Loam	
8-12	10YR 5/6	100					Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- 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)

Indicators for Problematic Hydric Soils³:

- 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)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 _____ City/County: _____ Lake Elmo/Washington County _____ Sampling Date: _____ 04/07/2021 _____
 Applicant/Owner: _____ City of Lake Elmo _____ State: _____ MN _____ Sampling Point: _____ IA-B _____
 Investigator(s): _____ Alex Yellick, Dylan Kruzel _____ Section, Township, Range: _____ S16, T29N, R21W _____
 Landform (hillslope, terrace, etc): _____ Till Plain - BS _____ Local relief (concave, convex, none): _____ Concave _____ Slope (%): _____ 1 _____
 Subregion (LRR or MLRA): _____ K _____ Lat: _____ 44.99561551 _____ Long: _____ -92.94077162 _____ Datum: _____ WGS 84 _____
 Soil Map Unit Name: _____ 120 _____ NWI classification: _____ None _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Sample was taken in existing rock pile with down gradient drainage vegetated in common burdock. Area does not support hydric soils or hydrophytic vegetation community and was determined to be dry land.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 8 _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): _____ 0 _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Hydrology is thought to be recent precipitation and does not represent true wetland hydrology; however, hydrology was determined present for this investigation.
 Offsite Area F: 66% wet signatures with adjacent mapped predominantly non-hydric soils and no NWI. Field verification supports saturation visible on aerial imagery (C9).

VEGETATION - Use scientific names of plants.

Sampling Point: IA-B

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1. <i>Acer negundo</i> / Boxelder, Box elder	45	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	45	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	0	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1. <i>Arctium minus</i> / Common burdock	80	Yes	FACU	
2. <i>Setaria pumila ssp. pumila</i> / Yellow foxtail, Yellow bristle grass	20	Yes	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	100	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
	0	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>33.3</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>100</u>	x 4 = <u>400</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145</u> (A)	<u>535</u> (B)
Prevalence Index = B/A = <u>3.69</u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input type="checkbox"/> 2 - Dominance Test is >50%	
<input type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	

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

SOIL

Sampling Point: IA-B

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	7.5YR 3/2	100					Sandy Loam	
14-18	7.5YR 3/2	90	7.5YR 4/4	10			Sandy Loam	Distinct redox
18-24	10YR 4/2	90	10YR 4/6	10	C	M	Loam	Prominent redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) **(LRR R, MLRA 149B)**

- Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- 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)

Indicators for Problematic Hydric Soils³:

- 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)**
- Dark Surface (S7) **(LRR K, L)**
- Polyvalue Below Surface (S8) **(LRR K, L)**
- Thin Dark Surface (S9) **(LRR K, L)**
- Iron-Manganese Masses (F12) **(LRR K, L, R)**
- Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: _____ PID: 163-1602921240002 City/County: _____ Lake Elmo/Washington County Sampling Date: _____ 04/07/2021
 Applicant/Owner: _____ City of Lake Elmo State: _____ MN Sampling Point: _____ IA-C
 Investigator(s): _____ Alex Yellick, Dylan Kruzel Section, Township, Range: _____ S16, T29N, R21W
 Landform (hillslope, terrace, etc): _____ Till Plain - TS Local relief (concave, convex, none): _____ Concave Slope (%): _____ 0
 Subregion (LRR or MLRA): _____ K Lat: _____ 44.9 Long: _____ -92.9 Datum: _____ WGS 84
 Soil Map Unit Name: _____ 49C NWI classification: _____ None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
--	--

Remarks: (Explain alternative procedures here or in a separate report.)
 Litter indicates the prior rotation was corn crop. Wetland hydrology and hydric soils are not present. Area was determined to be dry land.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
---	--

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

Remarks: Offsite Area 1: 38% wet signatures with adjacent mapped predominantly non-hydric soils and no NWI. Because wetland hydrology is not present, field verification DOES NOT support saturation visible on aerial imagery (C9).

VEGETATION - Use scientific names of plants.

Sampling Point: IA-C

	Absolute %Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)				
1.	100	Yes	FAC	<i>Panicum capillare</i> / Old witch grass
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30</u>)				
1.				
2.				
3.				
4.				
	<u>0</u>	= Total Cover		

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>100</u>	x 3 = <u>300</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>300</u> (B)
Prevalence Index = B/A = <u>3.0</u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
<input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	

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

SOIL

Sampling Point: IA-C

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/3	100					Loam	
8-12	10YR 5/6	100					Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: 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) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- 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)

Indicators for Problematic Hydric Soils³:

- 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)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators 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

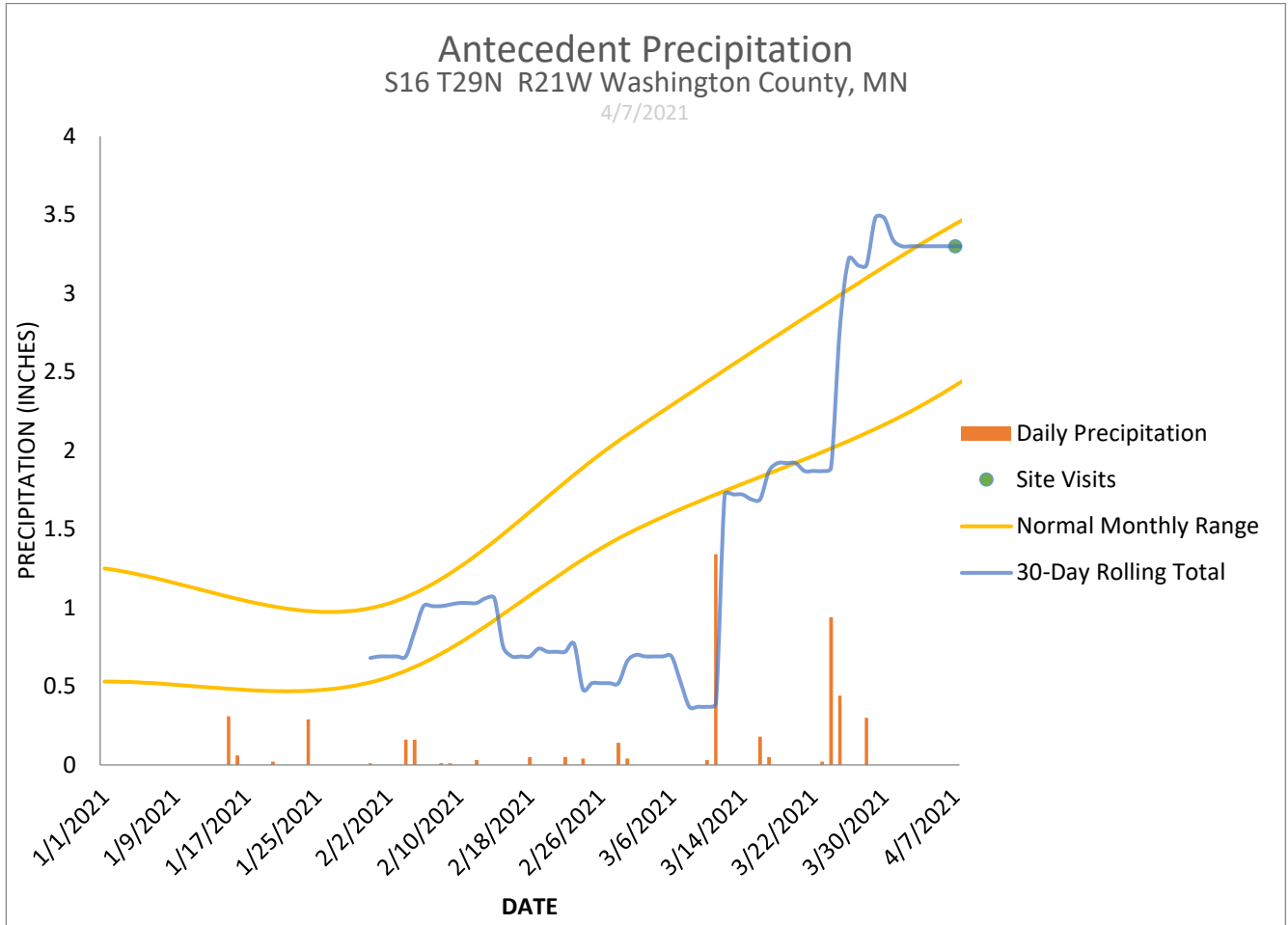
Remarks:

<!-- Empty space for remarks -->

Appendix C

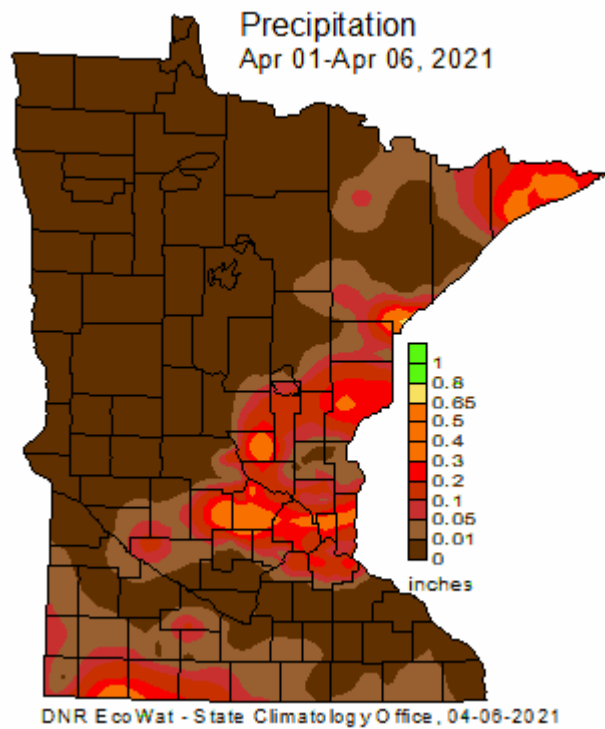
ANTECEDENT PRECIPITATION RECORD

Appendix C, Figure 1. Graph of recent precipitation in comparison with the normal range of precipitation in the general site location. Daily precipitation data is plotted independently and as a 30-day rolling total up to the date of the site visit. The normal range is plotted from precipitation data recorded from 1981 to 2010. The normal range is represented in this graph with two lines, the 30th percentile and the 70th percentile of the period-of-record data distribution.



Source: [Minnesota State Climatology Office](#)

Appendix C, Figure 2. Minnesota State Climatology Office map depicting total precipitation for the week of the site visit.



Appendix D

MINNESOTA ROUTINE ASSESSMENT METHODOLOGY (MnRAM)

Management Classification Report for 16349 W1

of Lake Elmo Former 3M Parcel

ID: 246

WASHINGTON County
Watershed, #
Corps Bank Service Area

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	Moderate
Moderate	Habitat Structure (wildlife)	Moderate
Not Applicable	Amphibian Habitat	Low
Not Applicable	Fish Habitat	Moderate
Not Applicable	Shoreline Protection	Low
Low	Aesthetic/Cultural/Rec/Ed and Habitat	Moderate / Low
Exceptional	Stormwater/Urban Sensitivity and Vegetative Diversity	- / -
Moderate	Wetland Water Quality and Vegetative Diversity	- / -
High	Characteristic Hydrology and Vegetative Diversity	- / -
Moderate	Flood/Stormwater Attenuation*	-
Not Applicable	Commercial use*	-
Moderate	Downstream Water Quality*	-

The critical function that caused this wetland to rank as **Manage 2** was **Maintenance of Characteristic Wildlife Habitat Structure**

Details of the formula for this action are shown below:

Maintenance of Characteristic Wildlife Habitat Str $(Q3e*2+Q39+Q37+Q40+Q41+(Q23+Q24+Q25)/3+Q13+Q20)/9$

<i>Question</i>	<i>Value</i>	<i>Description</i>
13	1	Outlet: hydrologic regime
20	0.1	Stormwater runoff
23	1	Buffer width
24	0.1	Adjacent area Management
25	0.1	Adjacent area diversity
37	0.1	Vegetation cover interspersion
39	0.1	Detritus
3e	0.1	<No Description Found>

* The classification value settings for these functions are not adjustable

Management Classification Report for 16349 W1

ID: 246

of Lake Elmo Former 3M Parcel

WASHINGTON County
Watershed, #
Corps Bank Service Area

40	0.5	Wetland interspersion/landscape
41	0.5	Wildlife barriers

This report was printed on: Friday, April 16, 2021

* The classification value settings for these functions are not adjustable

MnRAM: Site Response Record

For Wetland: 16349 W1

Location: 82-029-21-16-001

City of Lake Elmo Former 3M Parcel

Plant Community: Seasonally Flooded Ba

Cowardin Classification: PEM1A
Circular 39: Type 1

- 4 Listed, rare, special species?
- 5 Rare community or habitat?
- 6 Pre-European-settlement condition?

Hydrogeomorphology / topography:

7 Depressional/FlowThru

8-1 Maximum water depth 0 inches

8-2 % inundated 0%

9 Immediate drainage--local WS 2 acres

10 Estimated size/existing site: (see #66)

11-Upland Soil 153B

11-Wetland Soil 153B

12 Outlet for flood control

13 Outlet for hydro regime

14 Dominant upland land use

15 Wetland soil condition

16 Vegetation (% cover)

17 Emerg. veg flood resistance

18 Sediment delivery

19 Upland soils (soil group)

20 Stormwater runoff

21 Subwatershed wetland density

22 Channels/sheet flow

23 Adjacent buffer width

Adjacent area management

24-A Full

24-B Manicured

24-C Bare

Adjacent area diversity/structure

25-A Native

25-B Mixed

25-C Sparse

Adjacent area slope

26-A Gentle

26-B Moderate

26-C Steep

27 Downstream sens./WQ protect.

28 Nutrient loading

29 Shoreline wetland?

Shoreline Wetland

30 Rooted veg., % cover

31 Wetland in-water width

32 Emerg. veg. erosion resistance

33 Erosion potential of site

34 Upslope veg./bank protection

35 Rare wildlife?

36 Scarce/Rare/S1/S2 community

37 Vegetative cover

38 Veg. community interspersed

39 Wetland detritus

40 Interspersed on landscape

41 Wildlife barriers

Amphibian-breeding potential

42 Hydroperiod adequacy

43 Fish presence

44 Overwintering habitat

45 Wildlife species (list)

46 Fish habitat quality

47 Fish species (list)

48 Unique/rare opportunity

49 Wetland visibility

50 Proximity to population

51 Public ownership

52 Public access

53 Human influence on wetland

54 Human influence on viewshed

55 Spatial buffer

56 Recreational activity potential

57 Commercial crop--hydro impact

Groundwater-specific questions

58 Wetland soils Recharge

59 Subwatershed land use Recharge

60 Wetland size/soil group Recharge

61 Wetland hydroperiod Recharge

62 Inlet/Outlet configuration Recharge

63 Upland topo relief Recharge

Additional information

64 Restoration potential No

65 LO affected by restoration

66 Existing size

Restorable size

Potential new wetland

67 Average width of pot. buffer 0 feet

68 Ease of potential restoration

69 Hydrologic alterations 0

70 Potential wetland type 0

71 Stormwater sensitivity B

72 Additional treatment needs B

Watershed

WS# Service Area:

For functional ratings, please run the Summary tab report.

This report printed on: 4/16/2021

Management Classification Report for 16349 W1

of Lake Elmo Former 3M Parcel

ID: 246

WASHINGTON County
Watershed, #
Corps Bank Service Area

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	Moderate
Moderate	Habitat Structure (wildlife)	Moderate
Not Applicable	Amphibian Habitat	Low
Not Applicable	Fish Habitat	Moderate
Not Applicable	Shoreline Protection	Low
Low	Aesthetic/Cultural/Rec/Ed and Habitat	Moderate / Low
Exceptional	Stormwater/Urban Sensitivity and Vegetative Diversity	- / -
Low	Wetland Water Quality and Vegetative Diversity	- / -
Moderate	Characteristic Hydrology and Vegetative Diversity	- / -
Moderate	Flood/Stormwater Attenuation*	-
Not Applicable	Commercial use*	-
Moderate	Downstream Water Quality*	-

The critical function that caused this wetland to rank as **Manage 2** was **Maintenance of Characteristic Wildlife Habitat Structure**

Details of the formula for this action are shown below:

Maintenance of Characteristic Wildlife Habitat Str $(Q3e*2+Q39+Q37+Q40+Q41+(Q23+Q24+Q25)/3+Q13+Q20)/9$

<i>Question</i>	<i>Value</i>	<i>Description</i>
13	1	Outlet: hydrologic regime
20	0.5	Stormwater runoff
23	0.5	Buffer width
24	0.1	Adjacent area Management
25	0.1	Adjacent area diversity
37	0.1	Vegetation cover interspersion
39	0.1	Detritus
3e	0.1	<No Description Found>

* The classification value settings for these functions are not adjustable

Management Classification Report for 16349 W1

ID: 246

of Lake Elmo Former 3M Parcel

WASHINGTON County
Watershed, #
Corps Bank Service Area

40	0.5	Wetland interspersion/landscape
41	0.5	Wildlife barriers

This report was printed on: Friday, April 16, 2021

* The classification value settings for these functions are not adjustable

MnRAM: Site Response Record

For Wetland: 16349 W1

Location: 82-029-21-16-001

City of Lake Elmo Former 3M Parcel

Plant Community: Seasonally Flooded Ba

Cowardin Classification: PEM1A
Circular 39: Type 1

- 4 Listed, rare, special species?
- 5 Rare community or habitat?
- 6 Pre-European-settlement condition?

Hydrogeomorphology / topography:

7 Depressional/Isolated

8-1 Maximum water depth 0 inches

8-2 % inundated 0%

9 Immediate drainage--local WS 5 acres

10 Estimated size/existing site: (see #66)

11-Upland Soil 120

11-Wetland Soil 120

12 Outlet for flood control

13 Outlet for hydro regime

14 Dominant upland land use

15 Wetland soil condition

16 Vegetation (% cover)

17 Emerg. veg flood resistance

18 Sediment delivery

19 Upland soils (soil group)

20 Stormwater runoff

21 Subwatershed wetland density

22 Channels/sheet flow

23 Adjacent buffer width

Adjacent area management

24-A Full

24-B Manicured

24-C Bare

Adjacent area diversity/structure

25-A Native

25-B Mixed

25-C Sparse

Adjacent area slope

26-A Gentle

26-B Moderate

26-C Steep

27 Downstream sens./WQ protect.

28 Nutrient loading

29 Shoreline wetland?

Shoreline Wetland

30 Rooted veg., % cover

31 Wetland in-water width

32 Emerg. veg. erosion resistance

33 Erosion potential of site

34 Upslope veg./bank protection

35 Rare wildlife?

36 Scarce/Rare/S1/S2 community

37 Vegetative cover

38 Veg. community interspersed

39 Wetland detritus

40 Interspersed on landscape

41 Wildlife barriers

Amphibian-breeding potential

42 Hydroperiod adequacy

43 Fish presence

44 Overwintering habitat

45 Wildlife species (list)

46 Fish habitat quality

47 Fish species (list)

48 Unique/rare opportunity

49 Wetland visibility

50 Proximity to population

51 Public ownership

52 Public access

53 Human influence on wetland

54 Human influence on viewshed

55 Spatial buffer

56 Recreational activity potential

57 Commercial crop--hydro impact

Groundwater-specific questions

58 Wetland soils Recharge

59 Subwatershed land use Recharge

60 Wetland size/soil group Recharge

61 Wetland hydroperiod Recharge

62 Inlet/Outlet configuration Recharge

63 Upland topo relief Recharge

Additional information

64 Restoration potential No

65 LO affected by restoration

66 Existing size

Restorable size

Potential new wetland

67 Average width of pot. buffer 0 feet

68 Ease of potential restoration

69 Hydrologic alterations 0

70 Potential wetland type 0

71 Stormwater sensitivity C

72 Additional treatment needs C

Watershed

WS# Service Area:

For functional ratings, please run the Summary tab report.

This report printed on: 4/16/2021

Management Classification Report for 16349 W3

of Lake Elmo Former 3M Parcel

ID: 248

WASHINGTON County
Watershed, #
Corps Bank Service Area

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	Moderate
Moderate	Habitat Structure (wildlife)	Moderate
Not Applicable	Amphibian Habitat	Low
Not Applicable	Fish Habitat	Moderate
Not Applicable	Shoreline Protection	Low
Low	Aesthetic/Cultural/Rec/Ed and Habitat	Moderate / Low
Exceptional	Stormwater/Urban Sensitivity and Vegetative Diversity	- / -
Low	Wetland Water Quality and Vegetative Diversity	- / -
Moderate	Characteristic Hydrology and Vegetative Diversity	- / -
Moderate	Flood/Stormwater Attenuation*	-
Not Applicable	Commercial use*	-
Moderate	Downstream Water Quality*	-

The critical function that caused this wetland to rank as **Manage 2** was **Maintenance of Characteristic Wildlife Habitat Structure**

Details of the formula for this action are shown below:

Maintenance of Characteristic Wildlife Habitat Str $(Q3e*2+Q39+Q37+Q40+Q41+(Q23+Q24+Q25)/3+Q13+Q20)/9$

<i>Question</i>	<i>Value</i>	<i>Description</i>
13	1	Outlet: hydrologic regime
20	0.5	Stormwater runoff
23	0.5	Buffer width
24	0.1	Adjacent area Management
25	0.1	Adjacent area diversity
37	0.1	Vegetation cover interspersion
39	0.1	Detritus
3e	0.1	<No Description Found>

* The classification value settings for these functions are not adjustable

Management Classification Report for 16349 W3

ID: 248

of Lake Elmo Former 3M Parcel

WASHINGTON County
Watershed, #
Corps Bank Service Area

40	0.5	Wetland interspersion/landscape
41	0.5	Wildlife barriers

This report was printed on: Friday, April 16, 2021

* The classification value settings for these functions are not adjustable

MnRAM: Site Response Record

For Wetland: 16349 W3

Location: 82-029-21-16-001

City of Lake Elmo Former 3M Parcel

Plant Community: Seasonally Flooded Ba

Cowardin Classification: PEM1A
Circular 39: Type 1

- 4 Listed, rare, special species?
- 5 Rare community or habitat?
- 6 Pre-European-settlement condition?

Hydrogeomorphology / topography:

7 Depressional/Isolated

8-1 Maximum water depth 0 inches

8-2 % inundated 0%

9 Immediate drainage--local WS 5 acres

10 Estimated size/existing site: (see #66)

11-Upland Soil 120

11-Wetland Soil 120

12 Outlet for flood control

13 Outlet for hydro regime

14 Dominant upland land use

15 Wetland soil condition

16 Vegetation (% cover)

17 Emerg. veg flood resistance

18 Sediment delivery

19 Upland soils (soil group)

20 Stormwater runoff

21 Subwatershed wetland density

22 Channels/sheet flow

23 Adjacent buffer width

Adjacent area management

24-A Full

24-B Manicured

24-C Bare

Adjacent area diversity/structure

25-A Native

25-B Mixed

25-C Sparse

Adjacent area slope

26-A Gentle

26-B Moderate

26-C Steep

27 Downstream sens./WQ protect.

28 Nutrient loading

29 Shoreline wetland?

Shoreline Wetland

30 Rooted veg., % cover

31 Wetland in-water width

32 Emerg. veg. erosion resistance

33 Erosion potential of site

34 Upslope veg./bank protection

35 Rare wildlife?

36 Scarce/Rare/S1/S2 community

37 Vegetative cover

38 Veg. community interspersed

39 Wetland detritus

40 Interspersion on landscape

41 Wildlife barriers

Amphibian-breeding potential

42 Hydroperiod adequacy

43 Fish presence

44 Overwintering habitat

45 Wildlife species (list)

46 Fish habitat quality

47 Fish species (list)

48 Unique/rare opportunity

49 Wetland visibility

50 Proximity to population

51 Public ownership

52 Public access

53 Human influence on wetland

54 Human influence on viewshed

55 Spatial buffer

56 Recreational activity potential

57 Commercial crop--hydro impact

Groundwater-specific questions

58 Wetland soils Recharge

59 Subwatershed land use Recharge

60 Wetland size/soil group Recharge

61 Wetland hydroperiod Recharge

62 Inlet/Outlet configuration Recharge

63 Upland topo relief Recharge

Additional information

64 Restoration potential No

65 LO affected by restoration

66 Existing size

Restorable size

Potential new wetland

67 Average width of pot. buffer 0 feet

68 Ease of potential restoration

69 Hydrologic alterations 0

70 Potential wetland type 0

71 Stormwater sensitivity C

72 Additional treatment needs C

Watershed

WS# Service Area:

For functional ratings, please run the Summary tab report.

This report printed on: 4/16/2021

Management Classification Report for 16349 W4

of Lake Elmo Former 3M Parcel

ID: 249

WASHINGTON County
Watershed, #
Corps Bank Service Area

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	Moderate
Moderate	Habitat Structure (wildlife)	Moderate
Not Applicable	Amphibian Habitat	Low
Not Applicable	Fish Habitat	Moderate
Not Applicable	Shoreline Protection	Low
Low	Aesthetic/Cultural/Rec/Ed and Habitat	Moderate / Low
Moderate	Stormwater/Urban Sensitivity and Vegetative Diversity	- / -
Low	Wetland Water Quality and Vegetative Diversity	- / -
Moderate	Characteristic Hydrology and Vegetative Diversity	- / -
Moderate	Flood/Stormwater Attenuation*	-
Not Applicable	Commercial use*	-
Moderate	Downstream Water Quality*	-

The critical function that caused this wetland to rank as **Manage 2** was **Maintenance of Characteristic Wildlife Habitat Structure**

Details of the formula for this action are shown below:

Maintenance of Characteristic Wildlife Habitat Str $(Q3e*2+Q39+Q37+Q40+Q41+(Q23+Q24+Q25)/3+Q13+Q20)/9$

Question	Value	Description
13	1	Outlet: hydrologic regime
20	0.5	Stormwater runoff
23	0.5	Buffer width
24	1	Adjacent area Management
25	0.5	Adjacent area diversity
37	0.1	Vegetation cover interspersation
39	0.1	Detritus
3e	0.1	<No Description Found>

* The classification value settings for these functions are not adjustable

Management Classification Report for 16349 W4

ID: 249

of Lake Elmo Former 3M Parcel

WASHINGTON County
Watershed, #
Corps Bank Service Area

40	0.5	Wetland interspersion/landscape
41	0.5	Wildlife barriers

This report was printed on: Friday, April 16, 2021

* The classification value settings for these functions are not adjustable

MnRAM: Site Response Record

For Wetland: 16349 W4

Location: 82-029-21-16-001

City of Lake Elmo Former 3M Parcel

Plant Community: Fresh (Wet) Meadow

Cowardin Classification: Circular 39:
PEM1B Type 2

- 4 Listed, rare, special species?
- 5 Rare community or habitat?
- 6 Pre-European-settlement condition?

Hydrogeomorphology / topography:

7 Depressional/Isolated

8-1 Maximum water depth 0 inches

8-2 % inundated 0%

9 Immediate drainage--local WS 5 acres

10 Estimated size/existing site: (see #66)

11-Upland Soil 264

11-Wetland Soil 264

12 Outlet for flood control

13 Outlet for hydro regime

14 Dominant upland land use

15 Wetland soil condition

16 Vegetation (% cover)

17 Emerg. veg flood resistance

18 Sediment delivery

19 Upland soils (soil group)

20 Stormwater runoff

21 Subwatershed wetland density

22 Channels/sheet flow

23 Adjacent buffer width

Adjacent area management

24-A Full

24-B Manicured

24-C Bare

Adjacent area diversity/structure

25-A Native

25-B Mixed

25-C Sparse

Adjacent area slope

26-A Gentle

26-B Moderate

26-C Steep

27 Downstream sens./WQ protect.

28 Nutrient loading

29 Shoreline wetland?

Shoreline Wetland

30 Rooted veg., % cover

31 Wetland in-water width

32 Emerg. veg. erosion resistance

33 Erosion potential of site

34 Upslope veg./bank protection

35 Rare wildlife?

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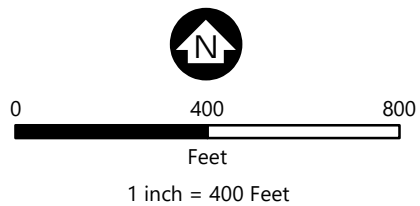
WS# Service Area:

For functional ratings, please run the Summary tab report.

This report printed on: 4/16/2021



- PWI Watercourse
- PWI Basin
- VBWD Wetland Management Classification Ratings
- Preserve
- Manage 1
- Manage 2



Valley Branch Watershed District-wide MnRAM Assessment
 4/16/2021

* Field validation resulted in a different determination from VBWD assessment. See Appendix D for documentation.

Appendix E

OFF-SITE AGRICULTURE REVIEW



Legend

- Project Parcels
- Washington Co. Parcels
- Investigation Area
- Excluded Area

PID: 163-1602921240002

Project No: 16349

Date: 4.5.2021

1 inch = 400 feet



0 200 400 800



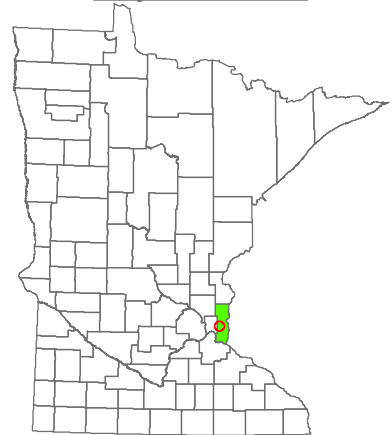
Feet



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Project Location



City of Lake Elmo
 Washington County, MN

Wetland Hydrology from Aerial Imagery - Recording Form

Project: City of Lake Elmo - Ideal Avenue Property
Comm #: 16349

Date: 4/5/2021
Legal: S 6, T 102N, R31W

County: Washington
Lat/Long: 44.995, -92.939

Image Date	Image Source	Climate Condition (wet, dry, normal)	Image Interpretation								
			Area A	Area B	Area C	Area D	Area E	Area F	Area G	Area H	Area I
2020	MnGEO	Normal	NV	NV	SS	NV	WS	WS	WS	NV	NV
2019	FSA	Wet	CS	CS	CS	CS	WS	CS	WS	CS	CS
2018	Google Earth	Wet	NV	NV	SS	NV	SS	SS	WS	NV	NV
2017	FSA	Normal	NV	NV	CS	NV	CS	CS	WS	CS	CS
2016	MnGEO	Wet	NV	NV	NV	NV	SS	SS	WS	NV	NV
2015	FSA	Wet	NV	NV	CS	CS	CS	CS	WS	NV	NV
2014	Google Earth	Wet	NV	NV	SS	NV	SS	SS	WS	NV	NV
2013	FSA	Wet	CS	CS	CS	CS	CS	CS	WS	CS	CS
2012	Google Earth	Normal	NV	NV	NV	NV	SS	SS	WS	NV	NV
2010	FSA	Wet	NV	NV	AP	NV	AP	AP	WS	CS	NV
2009	FSA	Normal	NV	NV	CS	CS	CS	NV	WS	NV	CS
2008	FSA	Normal	NV	NV	CS	NV	NV	NV	WS	NV	NV
2006	Google Earth	Normal	NV	NV	SS	SS	SS	SS	WS	NV	NV
2004	USGS	Normal	NV	NV	CS	CS	CS	SS	WS	NV	NV
2003	FSA	Normal	CS	NV	DO	DO	CS	DO	WS	CS	CS
Number of Normal			8	8	8	8	8	8	8	8	8
Number with wet signatures			1	0	7	4	6	5	8	2	3
Percent with wet Signatures			13%	0%	88%	50%	75%	63%	100%	25%	38%

Acronyms:		
WS-wetland signature	SS-soil wetness signature	CS-crop stress
NC-not cropped	AP-altered pattern	NV-normal vegetatic cover
DO - drowned out	SW-standing water	NSS-no soil wetness signature

Wetland Hydrology from Aerial Imagery - Recording Form

Project: City of Lake Elmo - Ideal Avenue Property
Comm #: 16349
Decision Matrix.

Date: 4/5/2021
Legal: S 6, T 102N, R31W

County: Washington
Lat/Long: 44.995, -92.939

Hydric Soils Present	NWI Mapped	Percent with wet signatures from Exhibit 1	Field Verification Required	Wetland ?
YES	Yes	>50%	No	Yes
YES	Yes	30-50%	No	Yes
YES	Yes	<30%	Yes	Yes if other hydrology indicators present
YES	No	>50%	No	Yes
YES	No	30-50%	Yes	Yes if other hydrology indicators present
YES	No	<30%	No	No
No	Yes	>50%	No	Yes
No	Yes	30-50%	No	Yes
No	Yes	<30%	No	No
No	No	>50%	Yes	Yes if other hydrology indicators present
No	No	30-50%	Yes	Yes if other hydrology indicators present
No	No	<30%	No	No

TABLE 1.

Area	Hydric Soils Present	NWI Mapped	Percent with wet signatures from Exhibit 1	Other Hydrology Indicators Present ¹	Wetland?
A	NO	NO	13.00%		NO
B	NO	NO	0.00%		NO
C	NO	NO	88.00%		FIELD VERIFICATION REQUIRED
D	NO	NO	50.00%		FIELD VERIFICATION REQUIRED
E	NO	NO	75.00%		FIELD VERIFICATION REQUIRED
F	NO	NO	63.00%		FIELD VERIFICATION REQUIRED
G	NO	NO	100.00%		FIELD VERIFICATION REQUIRED
H	NO	NO	25.00%		NO
I	NO	NO	38.00%		FIELD VERIFICATION REQUIRED

¹ Answer N/A if field verification is not required and was not conducted

Wetland Hydrology from Aerial Imagery - Recording Form

Project: City of Lake Elmo - Ideal Avenue Property
 Comm #: 16349
 Precipitation Data

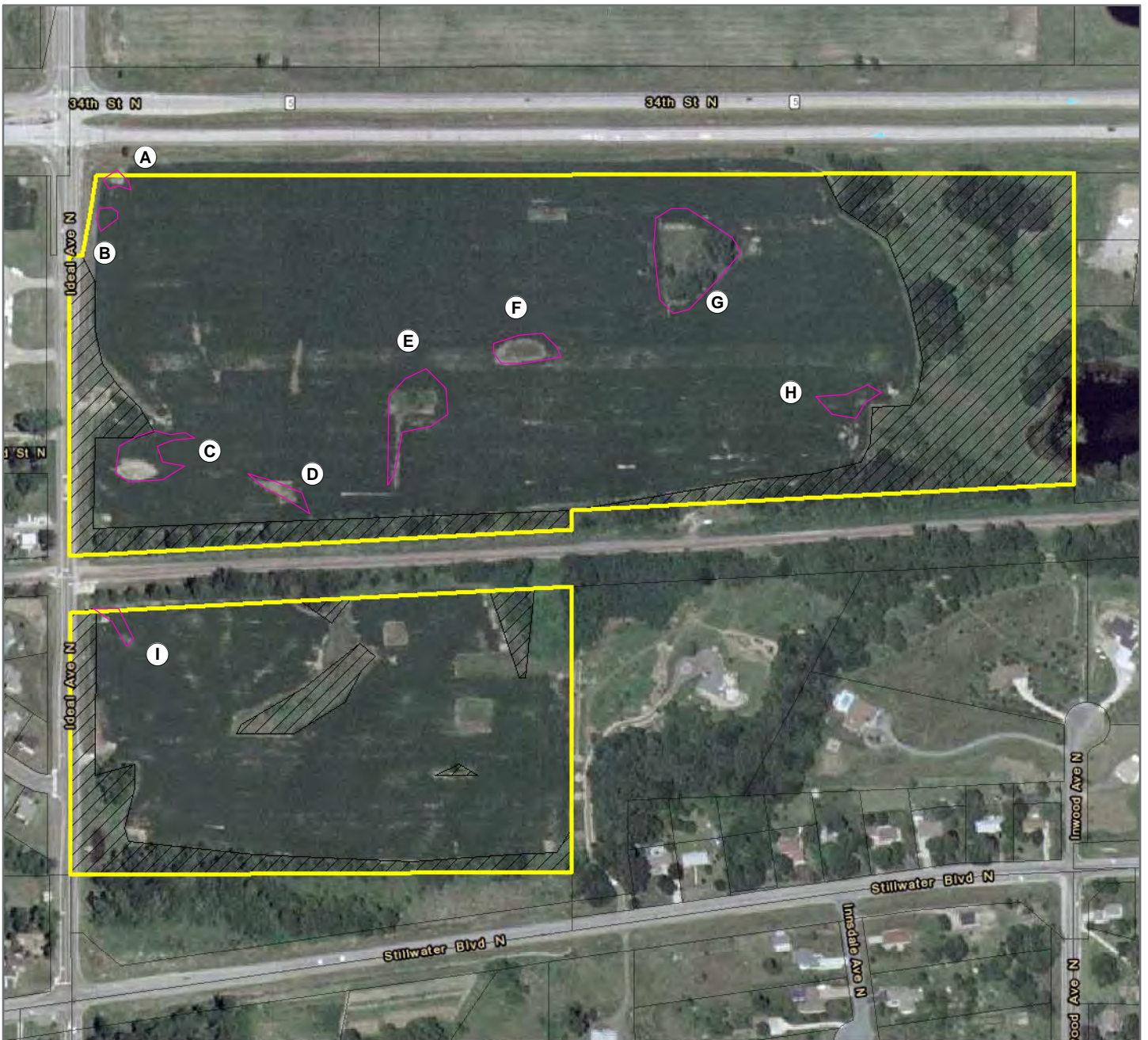
Date: 4/5/2021
 Legal: S 6, T 102N, R31W

County: Washington
 Lat/Long: 44.995, -92.939

Year	Apr	May	Jun	Jul	Aug	Sep	Oct	ANN	Precipitation Condition
2020	1.72	5.82	7.85	4.25	2.85	1.24	2.78	32.74	Normal
2019	4.17	6.68	2.74	5.26	6.65	4.90	5.64	45.16	Wet
2018	2.48	3.26	4.87	3.69	3.95	6.10	4.01	35.48	Wet
2017	3.48	6.16	3.38	2.54	6.20	1.52	4.36	31.91	Normal
2016	3.01	2.56	4.61	6.03	8.98	5.98	3.30	42.45	Wet
2015	2.12	4.79	5.06	6.91	3.33	5.59	3.07	40.34	Wet
2014	7.42	4.56	10.71	2.52	3.81	2.27	1.60	38.90	Wet
2013	4.98	5.75	7.45	2.00	0.91	1.63	3.81	33.32	Wet
2012	3.41	7.52	3.67	5.47	1.29	0.52	1.22	29.95	Normal
2011	3.29	3.83	4.67	8.33	4.95	0.78	0.94	32.87	Normal
2010	2.24	3.64	5.87	5.34	5.32	5.97	1.91	37.99	Wet
2009	1.65	0.70	3.48	2.41	7.17	0.56	6.80	28.72	Normal
2008	4.38	2.97	3.98	2.35	3.57	2.78	2.13	27.84	Normal
2007	1.59	3.65	1.30	1.89	6.28	5.55	4.51	32.44	Normal
2006	4.18	3.07	2.73	1.46	7.92	3.34	0.56	29.47	Normal
2005	2.39	3.53	6.01	2.98	5.58	5.32	5.78	38.67	Wet
2004	2.72	6.71	4.27	3.02	1.82	4.23	3.26	32.13	Normal
2003	2.16	6.80	5.90	2.52	0.60	2.82	1.15	26.89	Normal
2002	3.71	3.47	8.94	6.40	6.54	4.27	4.89	42.16	Wet
2001	7.28	4.02	5.72	1.81	3.23	3.55	1.39	34.07	Wet

color key:

- total is in lowest 30th percentile of the period-of-record distribution
- total is => 30th and <= 70th percentile
- total is in highest 30th percentile of the period-of-record distribution



Legend

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- Washington Co. Parcels
- Investigation Area
- Excluded Area

PID: 163-1602921240002

Project No: 16349

Date: 4.5.2021

1 inch = 400 feet



0 200 400 800



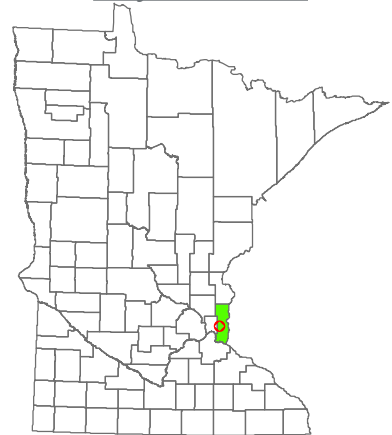
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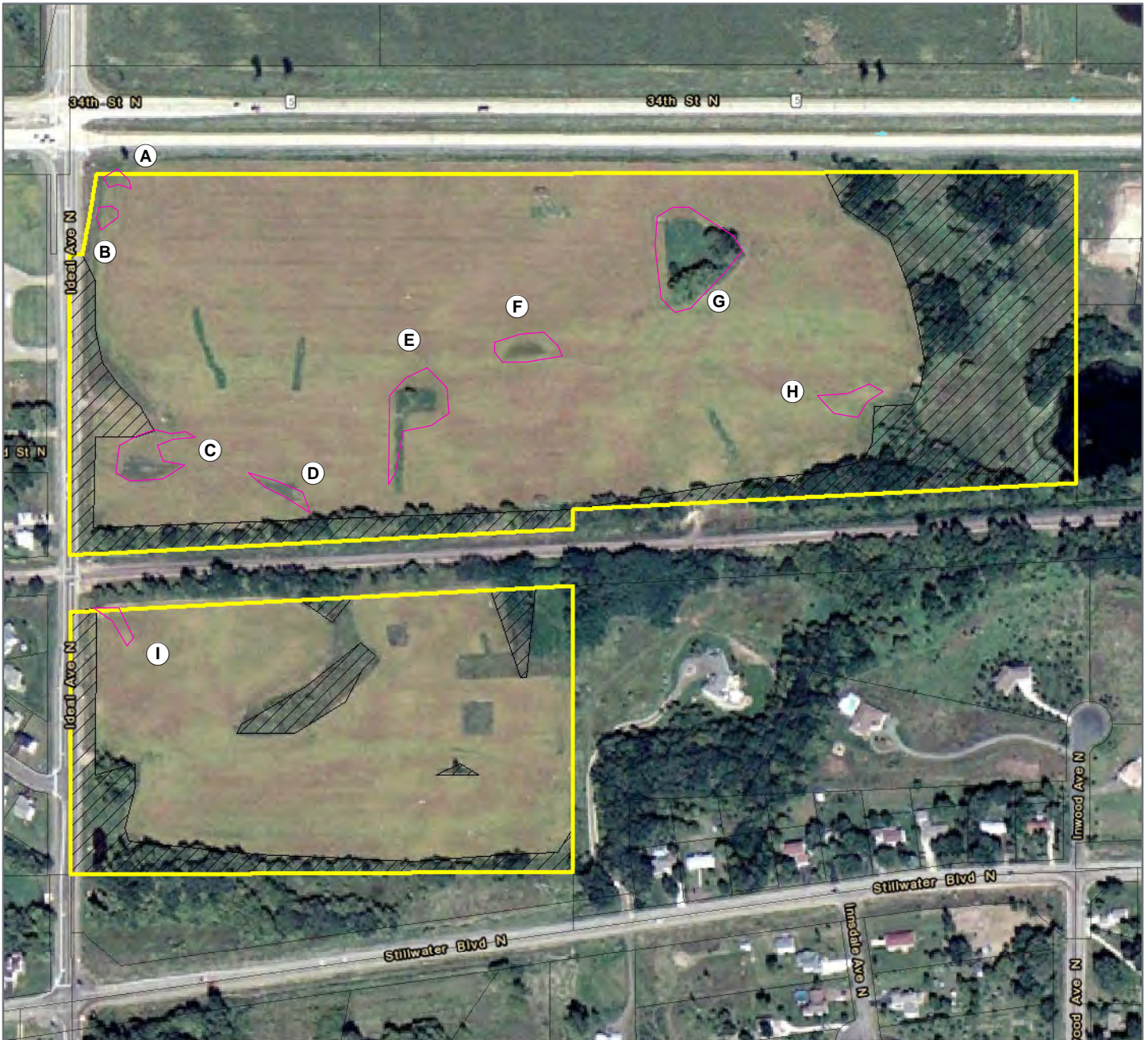
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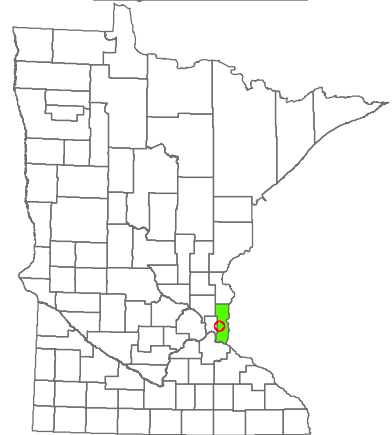
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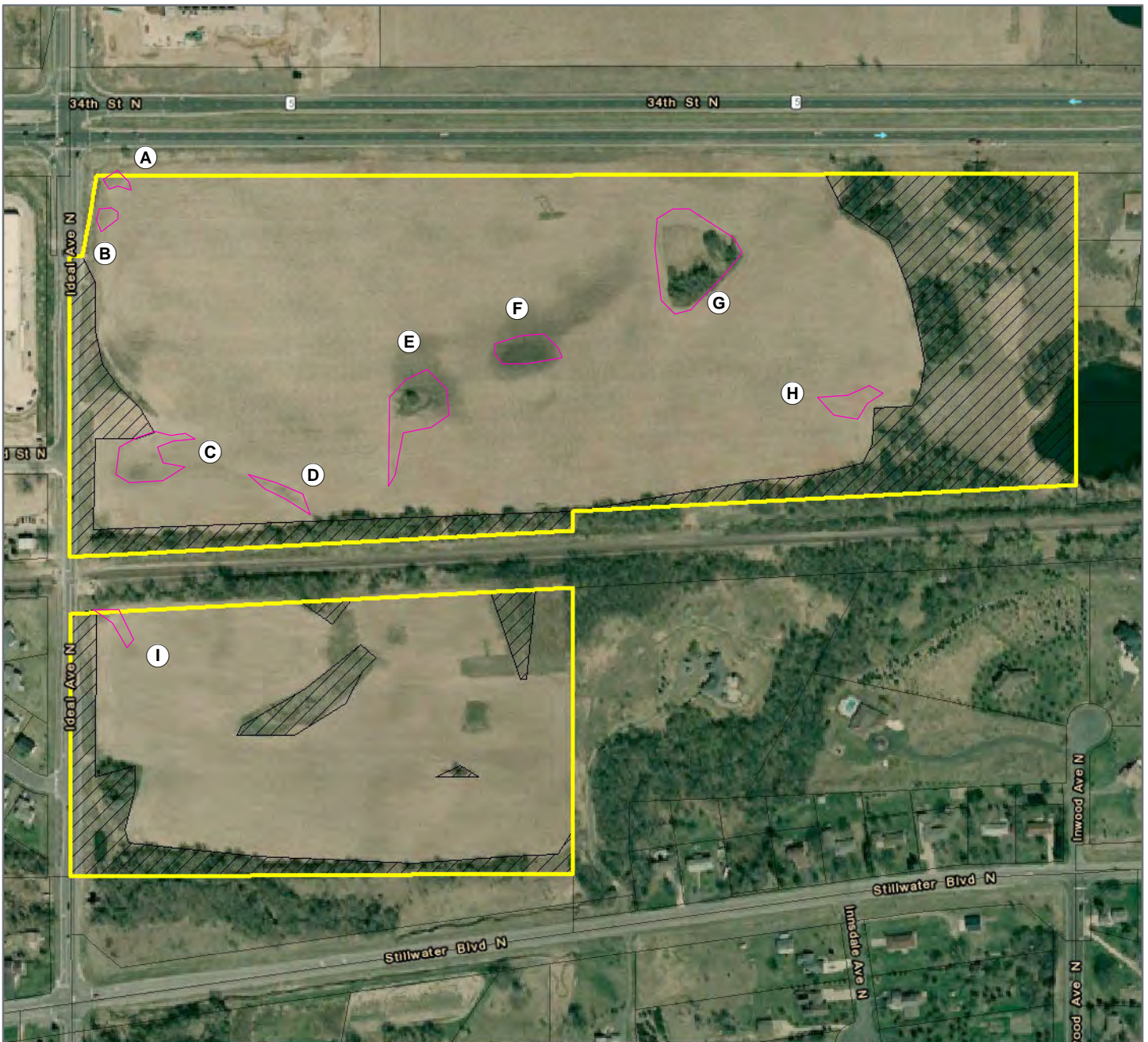
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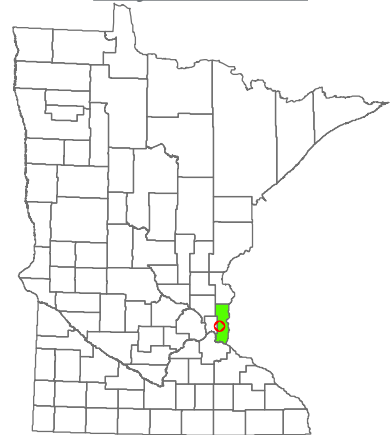
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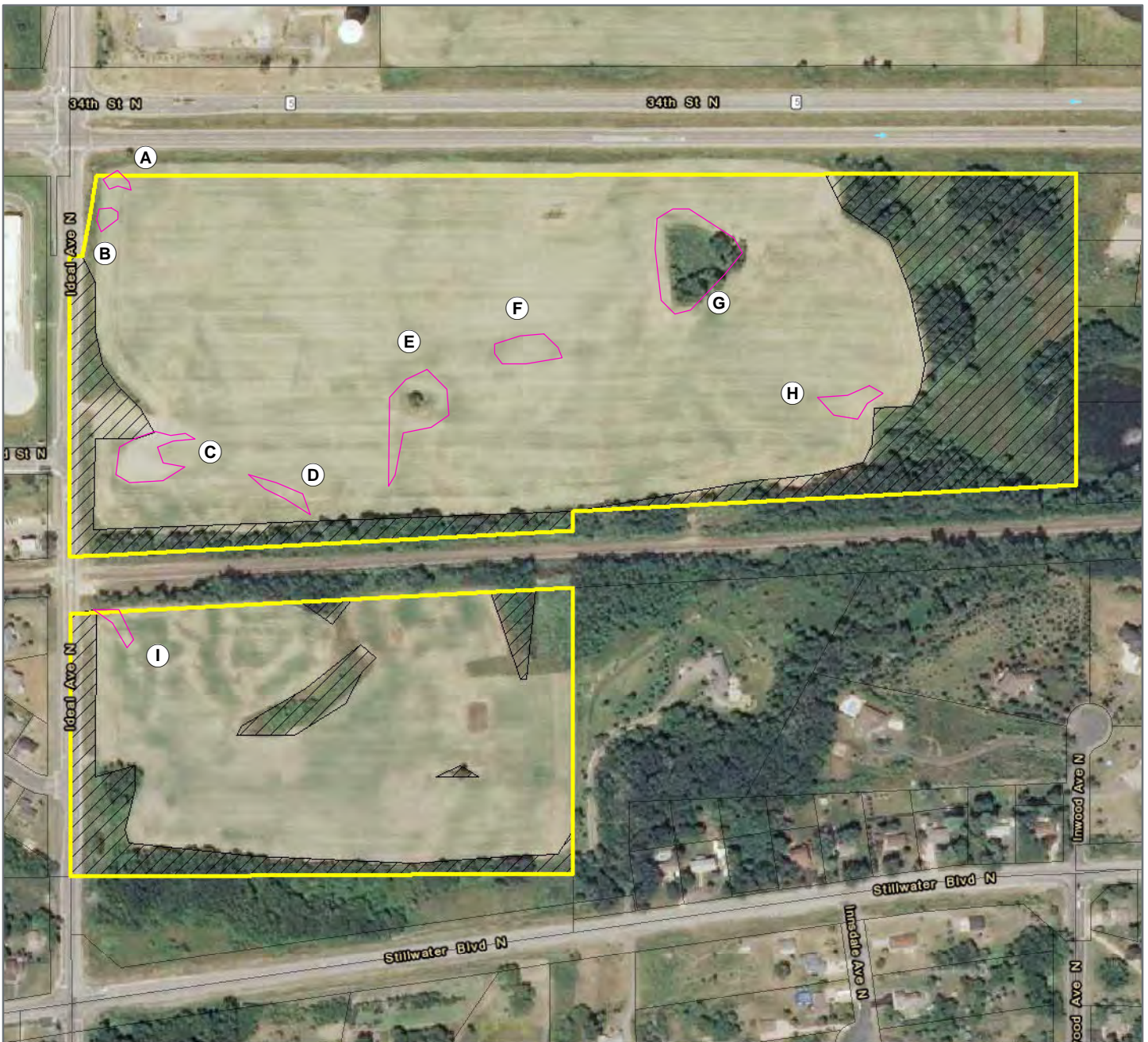
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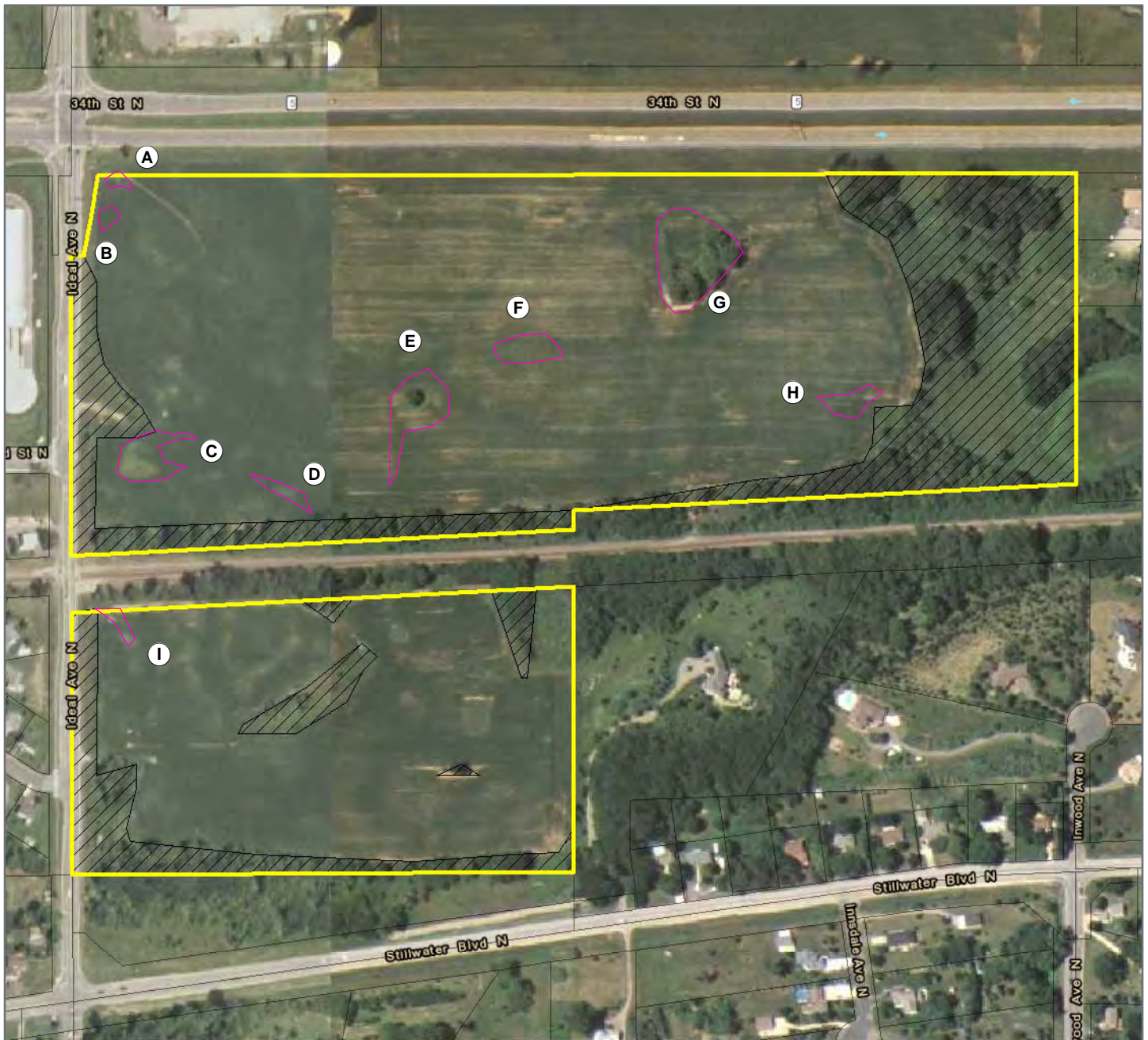
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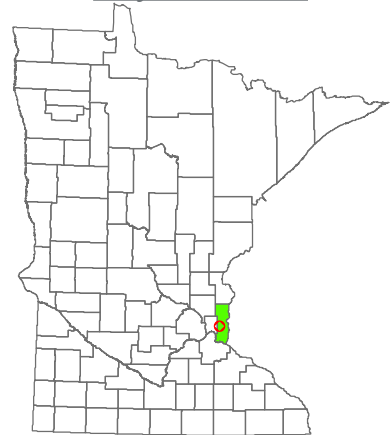
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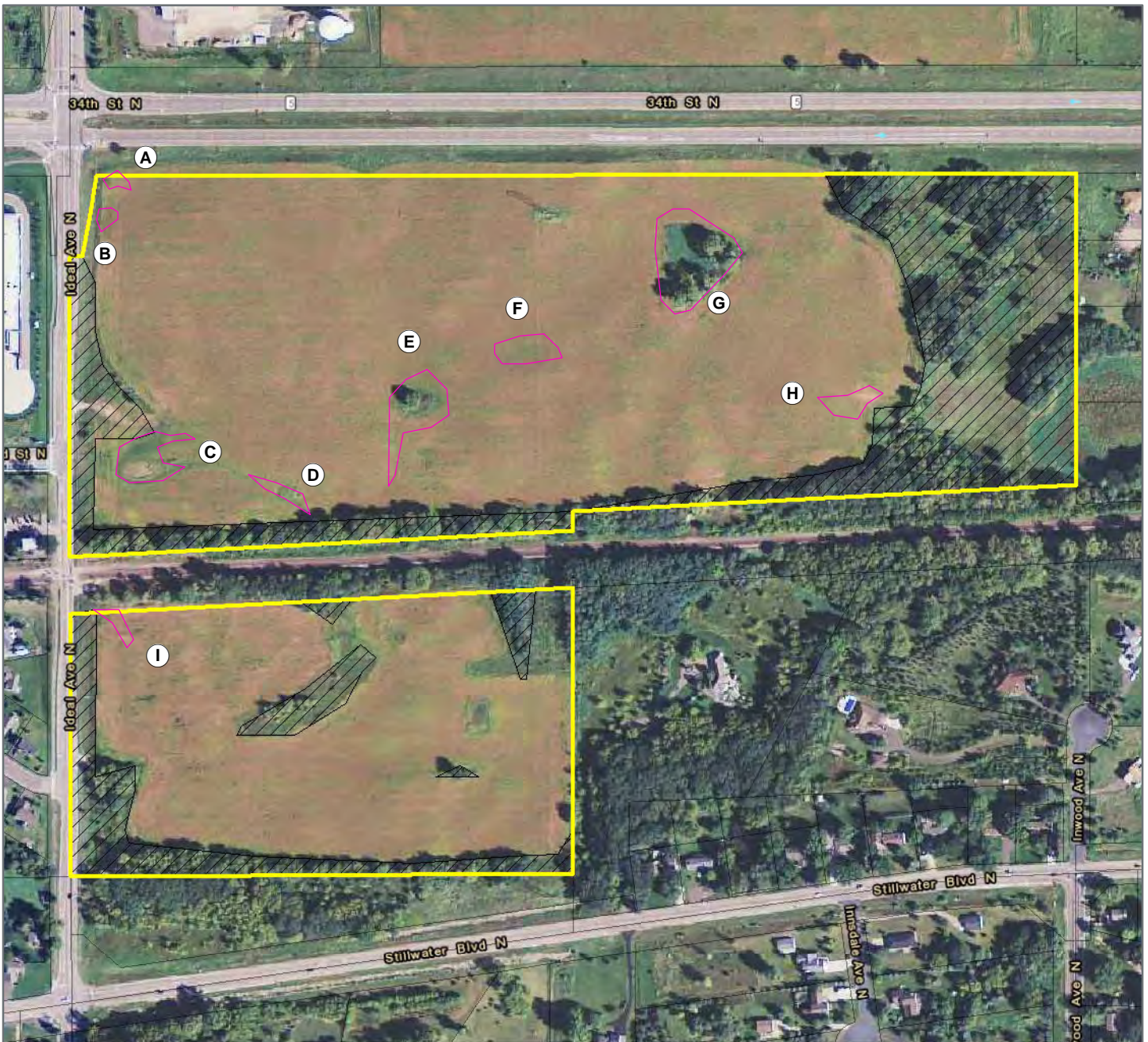
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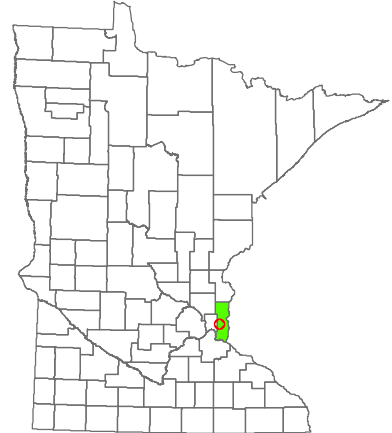
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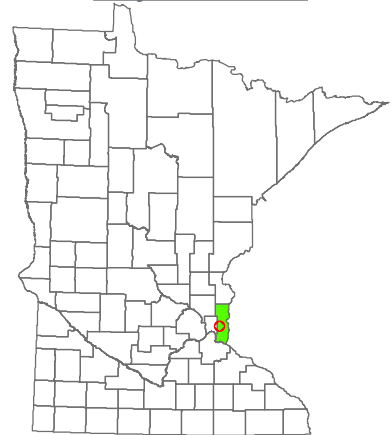
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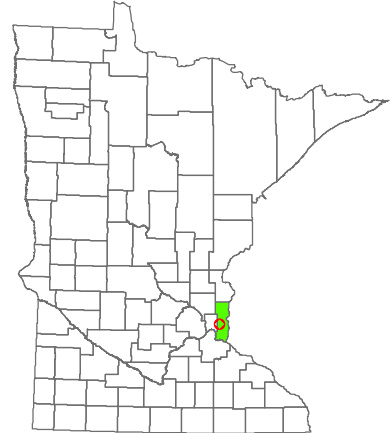
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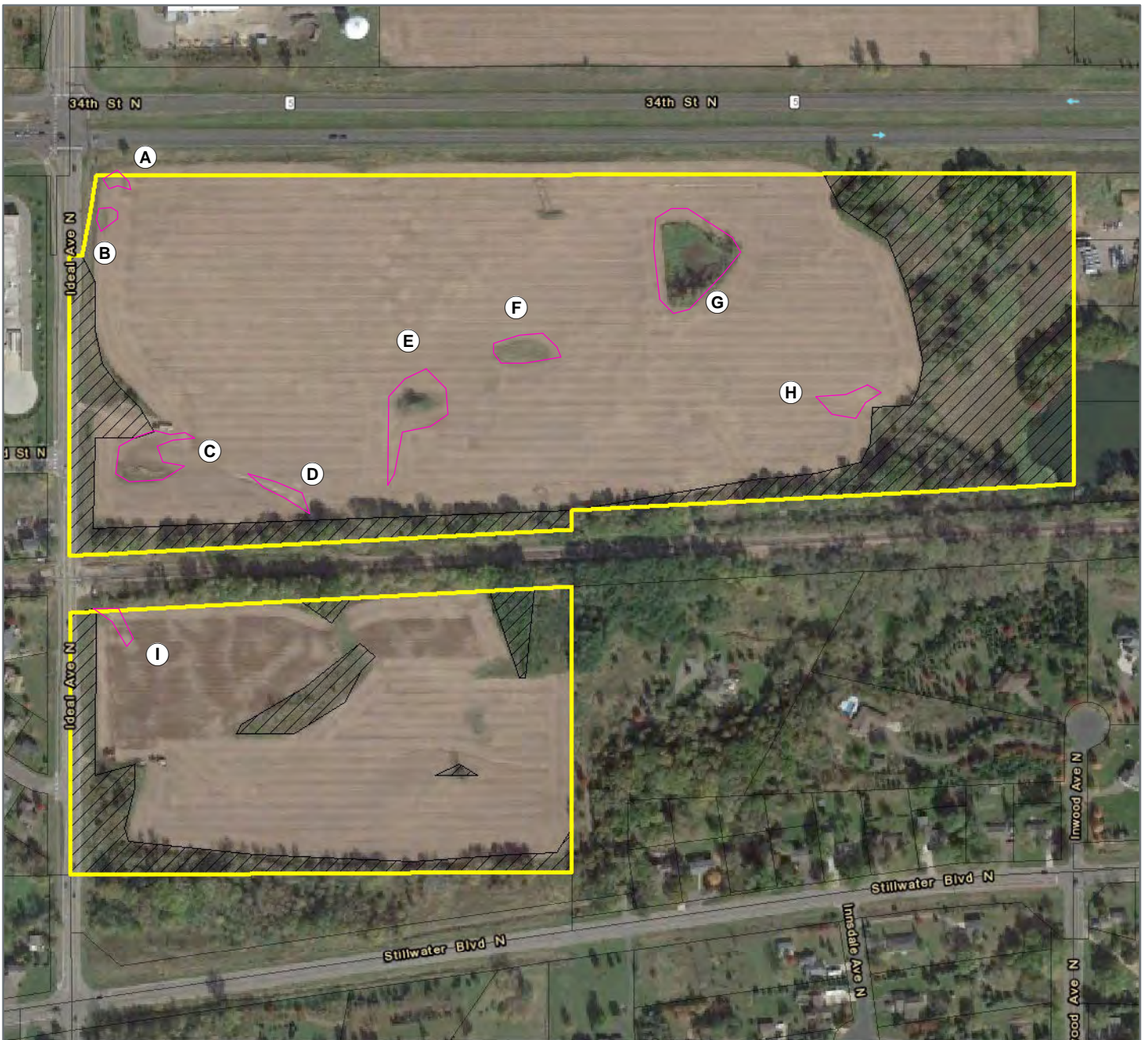
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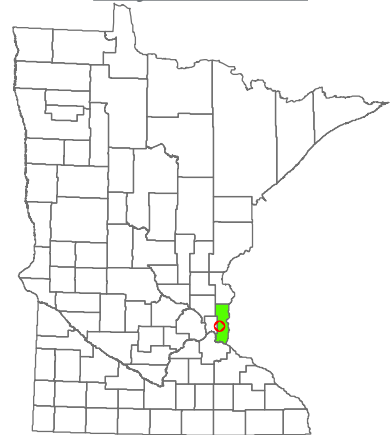
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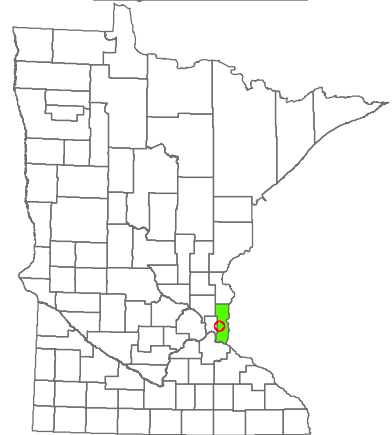
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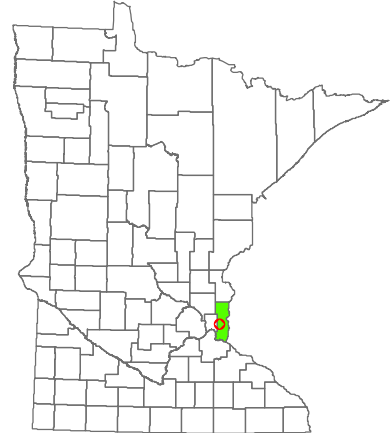
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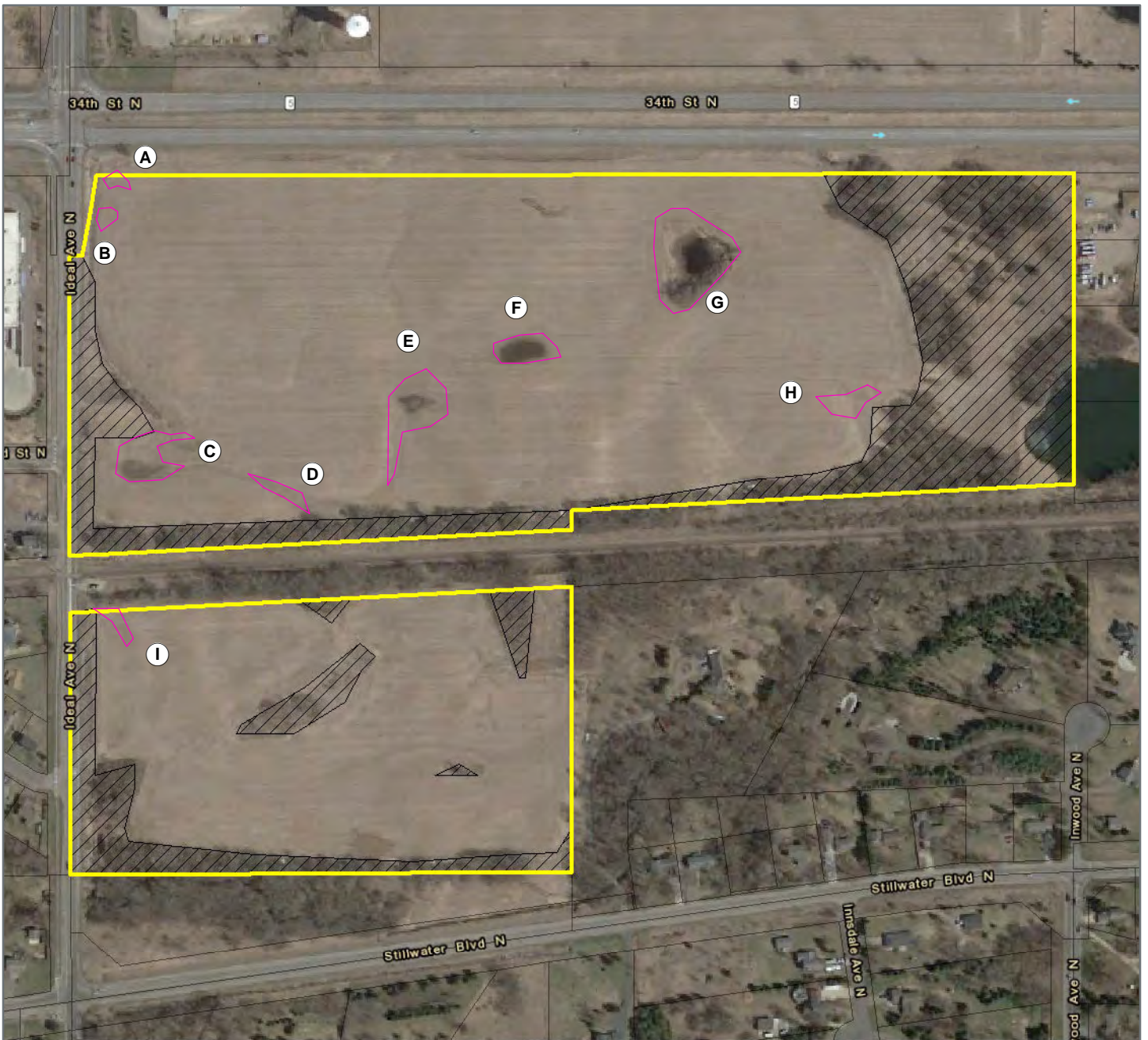
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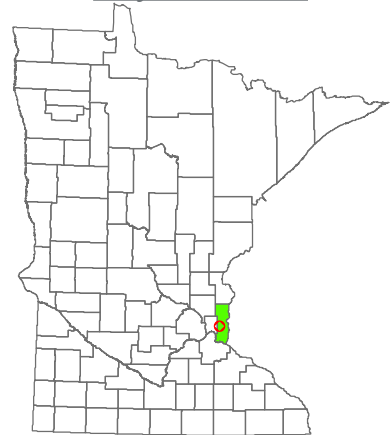
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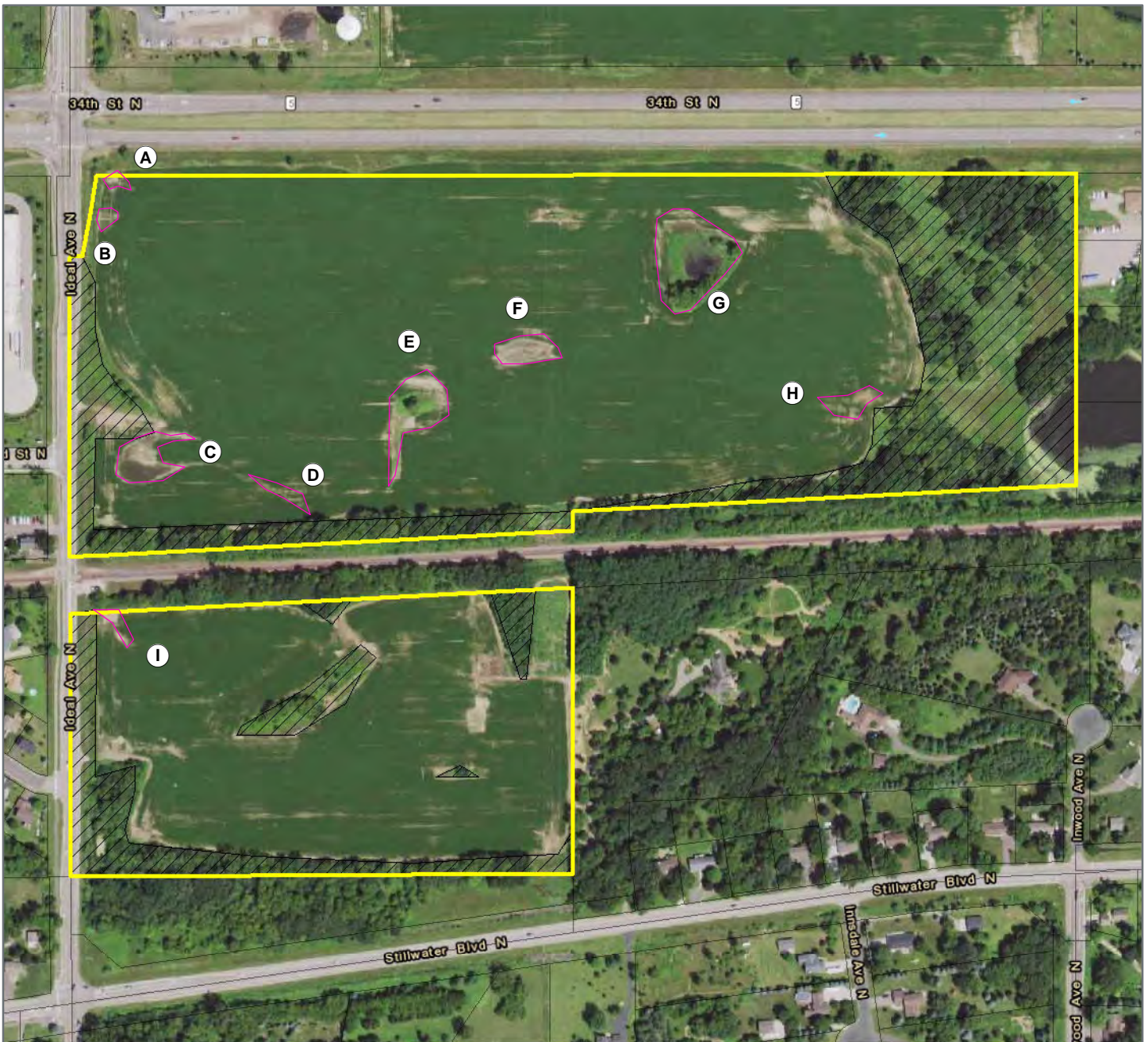
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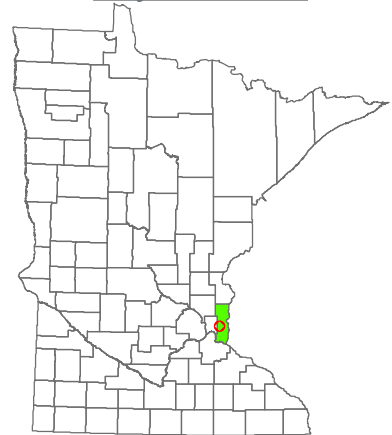
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1 inch = 400 feet



0 200 400 800



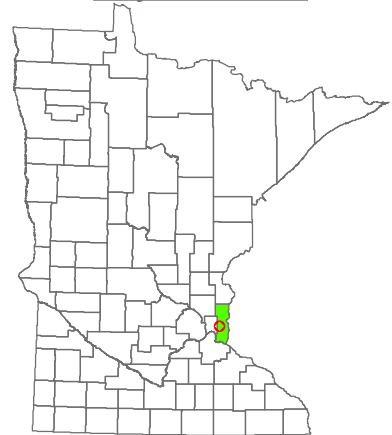
Feet



ANDERSON

13605 1st Ave N #100, Plymouth, MN 55441
 P 763.412.4000 F 763.412.4090 ae-mn.com

Project Location



City of Lake Elmo
 Washington County, MN

Appendix F

CREDENTIALS

CERTIFICATIONS

Professional Wetland Scientist #1832
 MN Certified Wetland Delineator #1016

EDUCATION

MS Water Resources Management
 University of Wisconsin-Madison

BS Biology; Ecology
 Minnesota State University- Mankato

SPECIALIZED TRAINING

Wetland Delineation & Management Training
 Richard Chinn Environmental Training, Inc.

Wetland Plant Identification
 Biotic Consultants Inc.

Plant Identification for Wetland Delineation
 University of Wisconsin-La Crosse

Watershed Academy Web Certificate
 United States Environmental Protection Agency

PROFESSIONAL ASSOCIATIONS

Society of Wetland Scientists
 MN Wetland Professionals Association (WPA)
 MN WPA President 2010
 Wisconsin Wetlands Association
 Association of State Wetland Managers
 Minnesota Native Plant Society
 Ecological Society of America

TOTAL EXPERIENCE

19 years

YEARS WITH CURRENT FIRM

2004 to Present

PUBLICATIONS & PRESENTATIONS

The Future of Rowan Creek Watershed: Connecting Land Use and Management with Water Quality. 2003. Water Resources Management Workshop 2002, Gaylord Nelson Institute for Environmental Studies, University of Wisconsin, Madison.

The Tumultuous World of Drainage Districts: An Analysis of Existing Management Arrangements, with Recommendations. Working Paper Series 2002-1. Water Resources Institutions and Policies, Department of Urban and Regional Planning, University of Wisconsin, Madison.

South Shore Lake Bemidji Remediation & Restoration, Society of American Military Engineers meeting June 22, 2016, St Paul, MN.

SUMMARY OF EXPERIENCE

Benjamin Hodapp, an Environmental Specialist and Senior Project Manager, brings a broad background of knowledge and experience in the environmental field to the Anderson Engineering team. Benjamin has a unique combination of multi-disciplinary academic training and work experience at various levels of federal, state and local government and private consulting.

Benjamin's project experience includes natural resource inventory and assessment; wetland delineation, mitigation design and monitoring; regulatory permitting; agency and stakeholder coordination; environmental impact assessment, environmental document preparation and public outreach.

REPRESENTATIVE PROJECTS

Southwest Light Rail Transit- Metropolitan Council – Minneapolis, MN: Project manager for wetland delineation and permitting efforts in support of multi-disciplinary consultant team for preparation of Final Environmental Impact Statement for proposed 16 mile light rail alignment. Project tasks included completion of wetland delineations, preparation of all federal, state and local wetland permits and wetland mitigation plans, quality assurance and quality control of all deliverable products.

Harriet Island to South St. Paul Regional Trail – City of St Paul, City of South St. Paul and Dakota County – St Paul, MN: Project manager for wetland delineation, mapping and assessment efforts in support of multi-disciplinary consultant team responsible for preliminary engineering and final design. Project tasks included project management oversight and coordination, supervising field staff in completion of both off-site and on-site wetland determinations, boundary delineations, GPS mapping and functional assessments. Oversaw preparation of and responsible for quality assurance and quality control of all deliverable products.

Crosstown Blvd. Pedestrian Trail – City of Andover – Andover, MN: Project Manager for wetland delineation associated with proposed City trail improvements. Services included a wetland delineation, GPS mapping and functional assessment document findings and coordination and approval of findings with federal, state and local regulatory agencies.

Bennett Family Park Improvements – Minnetonka, MN: Project Manager for wetland delineation associated with proposed baseball complex improvements. Services included a wetland delineation, GPS mapping and functional assessment document findings and coordination and approval of findings with federal, state and local regulatory agencies.

Section 401/404 Wetland Permitting – Fort McCoy Commemorative Park Expansion – Fort McCoy, WI: Provided project management services for Section 401/404 permitting associated with proposed wetland impacts resulting from the Commemorative Park Expansion Project at the Fort McCoy U.S. Army installation. Project tasks included project management, developing a wetland mitigation strategy in compliance with Section 401/404 and state wetland permitting requirements and oversight and quality control in preparing Section 401/404 permit application.

EDUCATION

MS Environmental & Conservation
Sciences
North Dakota State University

BS Biological Sciences
North Dakota State University

CERTIFICATIONS

MN Certified Wetland Delineator
#1354

MnDNR Tree Inspector
#201005102

Erosion and Stormwater
Management Construction Site
Management

HAZWOPER 40-hour Training

TOTAL EXPERIENCE

7 years

YEARS WITH CURRENT FIRM

2018 to present

SUMMARY OF EXPERIENCE

Alex Yellick, an Environmental Associate, brings a broad range of knowledge and experience in the environmental field to the Anderson Engineering team. Prior to his employment with Anderson Engineering of MN, LLC, Alex worked as a certified wetland delineator and has background in biologic assessments, regulatory review/permitting and Phase I Environmental Site Assessments. The skills that Alex developed through his educational background and experience make him proficient in assessing and addressing a range of environmental issues, and clearly communicating solutions to clients and various regulatory agencies.

Alex's project experience includes biological assessments of urban and rural wetlands, environmental compliance oversight, stormwater best management practices design and compliance, and Phase I site assessments. Alex has experience with Global Positioning Systems, Geographic Information Systems, and AutoCAD.

REPRESENTATIVE PROJECTS

Wetland Delineation/Assessment – Various Locations: services included wetland delineation and assessment of permitting requirements in support of linear construction projects and real-estate transactions. Project tasks included completion of wetland field delineations following the 1987 United States Army Corps of Engineers Wetland Manual and Midwest Regional Supplement, boundary delineations, GPS mapping, and preparation of reports to document findings and assess wetland impacts.

Permitting and Compliance Activities – Minnesota, Arkansas, Mississippi, Oklahoma, and Texas: Services included environmental permitting and operational compliance assistance associated with linear project construction and maintenance activities. Project tasks included assessment of proposed project environmental impacts to Federal and State regulated waters, floodplains, threatened and endangered species, historic properties, air quality, and local jurisdictional requirements, and preparation of permit applications and associated materials.

Stormwater Permitting and Compliance Activities – Greater Minneapolis-St. Paul Metropolitan Area: Provided National Pollution Discharge Elimination System permitting and compliance support to linear construction project activities. Project tasks consisted of evaluating project workspaces for appropriate stormwater best management practices, preparation of stormwater plans/permits, permit compliance inspections and post-construction restoration inspections, and preparation of reports to document inspection findings.

Phase I Environmental Site Assessment – Various Locations: Prepared Phase I Environmental Site Assessments of residential, commercial, industrial, and vacant properties in accordance with ASTM E1527-13. Project tasks generally included environmental desktop review, regulatory file review, site inspections, interviews, and preparation of reports to document findings.

EDUCATION

Bachelor of Science: Wildlife Biology
Minor: Wetlands Ecology and Biology

Bemidji State University – Bemidji

SPECIALIZED TRAINING

S-130 Basic Wildland Firefighter

S-190 Introduction to Fire Behavior

L-180 Human Factors in the Wildland
Fire Service

Certified Open Water Diver

OSHA 10 Hour Training

PROFESSIONAL ASSOCIATIONS

MN Wetland Professionals
Association (WPA)

The Wildlife Society (TWS)

TOTAL EXPERIENCE

2 years

YEARS WITH CURRENT FIRM

2020 to present

SUMMARY OF EXPERIENCE

Dylan Kruzel, an Environmental Associate, brings a broad background of knowledge and experience in the environmental field to the Anderson Engineering team. Prior to his employment with Anderson Engineering of MN, LLC, Dylan worked for the Soil and Water Conservation District (SWCD) of Becker County as a Conservation Technician. He conducted field evaluations for conservation plans, monitored conservation easements, and provided available natural resource program information to landowners with conservation concerns. He has also assisted in the design and installation of various native habitat, shoreline restoration, rain garden, and storm water mitigation projects. The skills that Dylan has developed through his educational background and experience make him proficient in assessing and addressing a range of ecological indications and environmental issues.

Dylan's project and educational experience includes conservation management practices, habitat management evaluations, species identification, regulatory permitting, environmental document preparation, wetland delineation and classifications. Dylan has experience with Collector for ArcGIS, Geographic Information Systems, Global Positioning Systems, and Realtime Landscape Architect.

REPRESENTATIVE PROJECTS

Wetland Delineation/Reporting – Various Locations: Services included wetland delineation and reporting in support of linear construction projects and real-estate transactions for federal, state, and local agencies, as well as private companies. Project tasks included completion of wetland field delineations following the 1987 Corps of Engineers Wetland Delineation Manual and Regional Supplement: Midwest Region, and Northcentral and Northeast Region, GPS mapping, and preparation of reports to document findings and assess wetland impacts.

Permitting Specialist – MN: Services include preparation of permit applications in accordance with the Minnesota Wetland Conservation Act to support the planning, design, and mitigation for residential, commercial, and state land development projects.

NEPA Documentation – MN: Services include preparation of Categorical Exclusion Determination documents in accordance with the Minnesota Department of Transportation Highway Project Development Process and the Department of Veteran Affairs (VA) NEPA Interim Guidance for Projects. Tasks include evaluation, coordination, and responding to assist project managers in environmental documentation for Minnesota highways and VA health care facilities.

Project Book – US Department of Veteran Affairs (VA) – Dallas VA Medical Center, TX: Project Coordinator to guide a multidisciplinary team in development of a project book for expansion of and upgrades to the Dallas VA Medical Center. The project consists of organizing and collection of pre-design information that will serve as the foundation of all future design work by defining project requirements and refining cost elements. Efforts involve close coordination with members of the design team.

Land Alterations and Field Monitoring – Becker County SWCD – MN: Services include performing the following general activities in compliance with federal, state, and local regulations: assisting in site evaluations and installing for various cost share projects like conservation easements, management practices, and shoreland alterations.