Wetland Delineation Report

LMRWD Dredge Site Scott County, Minnesota

Prepared for Lower Minnesota River Watershed District

January 2019



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1.0 Introduction

Lower Minnesota River Watershed District (LMRWD) is proposing to modify an existing dredge material storage site (the Project). The Project is located adjacent to the Minnesota River in the city of Savage within Township 27 North, Range 24, Section 31 (**Figure 1**). LMRWD plans to modify the existing dredge material storage area by changing the configuration of existing berms on the site and making the berms permanent features on the site. The total area of the site is approximately 1 acres. The Project is located within Savage city limits and the designated land use is mixed industrial and undeveloped riverside.

Barr Engineering Co. (Barr) conducted a field wetland delineation on October 30, 2018 within a 17-acre study area to assist with Project planning and permitting activities. The study area included the dredge material storage site and the surrounding area. This Wetland Delineation Report has been prepared in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010) and the requirements of the Minnesota Wetland Conservation Act (WCA) of 1991.

2.0 General Environmental Setting

2.1 Study Area Description

The wetland delineation study area included the proposed expansion area as well as the surrounding area bounded by the Minnesota River on the north and east, a large berm to the south and Vernon Avenue on the west. The study area located in area of mixed industrial and undeveloped riverine habitat within the city of Savage, Minnesota (**Figure 1**).

2.2 Site Topography

The study area primarily has a flat topography, however there is a channel along the west side of the area with steep banks sloping toward the channel bottom. The topography is also modified by a large manmade berm which runs east – west along the southern edge of the study area and turns to run north – south approximately 250 feet west of the Minnesota River (**Figure 2**).

2.3 National Wetland Inventory

The western, northern and eastern edges of the study area are mapped as forested PFO1A type wetlands in the National Wetland Inventory. The southern and central portions are partially mapped as PEM1A emergent wetlands (**Figure 3**).

2.4 Water Resources

There are no named water resources within the immediate study area. The Minnesota River is adjacent to the study area on the north and east sides. There is an unnamed channel on the west side of the study area that provides hydraulic connectivity between the Minnesota River and a large, unnamed wetland complex south of the project area.

2.5 Soil Resources

Soil information for the project site was obtained from the Natural Resources Conservation Service SSURGO Database. One soil map unit, Dorchester silty clay loam, was identified within the study area (**Figure 5**). This soil unit is described as moderately well drained and commonly found in floodplains. It is assigned to hydrologic group C, defined by the Web Soil Survey as "Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission."

3.0 Wetland Delineation

3.1 Wetland Delineation and Classification Methods

Wetlands within the study area were delineated and classified during a site visit on October 30, 2018. The wetland delineation was established according to the Routine On-Site Determination Method specified in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Edition) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010). Delineated wetland boundaries and sample points were surveyed using a Global Positioning System (GPS) with sub-meter accuracy.

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

Soil borings were placed in and around wetland areas, to a depth of at least 24 inches below the ground surface where possible. Representative soil samples from each boring were examined for the presence of hydric soil indicators using the Natural Resources Conservation Service (NRCS) hydric soil indicators (Version 8.1). Soil colors (e.g., 7.5YR 4/2, etc.) were determined using a Munsell® soil color chart and noted on the Wetland Data Forms **Appendix A**.

Hydrologic conditions were evaluated at each soil boring, and this information was also noted on the Wetland Data Forms. The dominant plant species were identified, and the corresponding wetland indicator status of each plant species was determined and noted on the Wetland Data Forms. Photographs taken at the time of the site visit are provided in **Appendix B**.

3.2 Wetland Description

Two wetlands were delineated within the study area. Wetland 1 runs along the western edge of the study area on either side of a channel connecting the Minnesota River to a large wetland complex south of the study area via a culvert below the access road onto the site. Wetland 2 makes up the southern boundary of much of the study area before turning northward and entering more fully into the study area, following the edge a constructed berm. A description of the wetlands is provided below, with representative photographs in **Appendix B**.

Wetland 1 is a fringe wetland adjacent to an including a channel connecting the Minnesota River to Wetland 2 to the south. The site visit was conducted 10/30/18. There was no identifiable herbaceous vegetation visible; however, decaying annual vegetation area noted in the area indicates it is likely present during the spring and summer months. The area is forested by a mix of species typical of moist areas including *Populus deltoides* (Cottonwood), *Acer saccharinum* (Sugar Maple), *Ulmus rubra* (Slippery Elm), *Acer negundo* (Box Elder), and *Fraxinus pennsylvanica* (Green Ash). Soils within Wetland 1 met hydric criteria for the Depleted Matrix (F3) indicator. Indicators of wetland hydrology were also noted at this site. Primary indicators Saturation (A3) and Water Marks (B1) as well as secondary indicators Geomorphic Position (D2) and FAC- Neutral Test (D5) were documented. The transition to upland is demarcated by a rapid change in elevation from the lower part of the channel to rough terrace approximately 5 feet higher. This upland area lacks the hydrology indicators found within the wetland area though the soils and vegetative community are similar.

This wetland was classified as palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A) in the Cowardin classification system; Type 1 (floodplain) in the USFWS Circular 39 system; and floodplain forest based on the Eggers and Reed Wetland Classification System.

Wetland 2 is a mixed sedge meadow and shallow marsh dominating much of the area south of the project area. The portions of this wetland which fall within the area of investigation are of the sedge meadow type with marsh characteristics farther south and deeper into the wetland. Vegetation noted at the sampling point taken within this wetland was identified as *Carex stricta* (Tussock Sedge) and *Carex vulpinoidea* (Fox Sedge). Soils at this location met hydric criteria due to the presence the indicators 2cm Muck (A10) and Depleted Matrix (F3). A number of indicators of wetland hydrology were also evident including Surface Water (A10), High Water Table (A2), Saturation (A3) and Inundation Visible on Aerial Imagery (B7). The upland transition is marked by an elevation change on the northern edge of Wetland 2 that has been further modified by the placement of a large berm. Dredge material has been placed on the northern side of this berm and that material was noted in the soil borings at this location.

This wetland was classified as palustrine, emergent, persistent and temporarily flooded (PEM1A) in the Cowardin classification system; Type 2 (wet meadow) in the USFWS Circular 39 system; and Sedge Meadow based on the Eggers and Reed Wetland Classification System.

A third area was noted during a follow up site visit on November 30, 2018 with representatives of Barr Engineering and the city of Savage present. A wetland sampling transect was conducted at this location to determine whether or not wetland criteria would be met, as well as a historic aerial photography review and assessment of current site conditions. Data sheets for this third location are at SP E in the data forms found in **Appendix A**. Aerial photography was reviewed with this location identified as Potential Wetland 3 and can be found in **Appendix D**. Potential Wetland 3 does not meet wetland criteria though there are a number of factors which make assessing this location problematic. Vegetation at SP E consisted of a similar mixed deciduous tree canopy, though far less dense than observed at Wetland 1, with a dense herbaceous layer dominated by *Phalaris arundinacea* (Reed Canary Grass). Soils at this location did not meet hydric criteria but were also problematic in that they appeared significantly disturbed with a mixing of horizons and topsoil – subsoil blending. Secondary hydrology indicators were noted, sufficient for this site to meet wetland hydrology criteria, however there is also a constructed berm immediately adjacent to and higher in elevation than this area. The berm is part of a system to drain and dry dredge material removed from the Minnesota River, and the dredge material has a high water content when placed into the bermed area. During the site visit in October there was some seeping water noted from the berm which likely is contributing to the ambiguous nature of this area displaying both wetland and upland characteristics. Photographs of this structure from October can be seen in **Appendix B**. The site was frozen during the November site visit, so seepage features were not apparent. The historic aerial photography for this area does not indicate a discernible wetland signature in this area for most of the past ten years. It is largely unremarkable and homogenous with the surrounding upland landscape (see **Appendix D**)

4.0 Regulatory Overview

The USACE regulates the placement of dredge or fill materials into waters or wetlands that are located adjacent to or are hydrologically connected to interstate or navigable waters under the authority of Section 404 of the Clean Water Act. If the USACE has jurisdiction over any portion of a project, they may also review impacts to wetlands under the authority of the National Environmental Policy Act. Based on previous communications with USACE around this project, the delineated wetland is assumed to be jurisdictional. LMRWD will coordinate permitting with the USACE as appropriate prior to project construction.

5.0 References

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







Barr Footer: ArcGIS 10.6, 2019-01-29 13:35 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Figure 3 NWI.mxd User: EMA











Appendices

Appendix A

Wetland Delineation Data Forms

Project/Site:	<u>LMRWD</u>	Savag	e Dredge S	<u>ite</u>	Applicant/	<i>HOwner:</i> Lower Minnesota River Watershe	City/County: Savage / S	Scott State:	<u>MN</u>	Sampling Date: <u>10/30/18</u>
Investigator(s):	<u>DSH</u>				Section:	<u>31</u>	Township: <u>27</u>	Range:	<u>24</u>	Sampling Point: <u>SP A</u>
Land Form:	Toeslop	<u>e</u>			Local Rel	lief: <u>Concave</u>	Slope %: <u>8</u> Se	oil Map Unit Name.	Dorches	ster silty clay loam
Subregion (LRR,	<u>): M</u>				Latitude:	44.789147	Longitude: <u>-93.349858</u>	Datum:	<u>WGS84</u>	
Cowardin Classi	fication:	<u>PF01</u>	<u>A</u>		Circular 3	39 Classification: <u>Type1</u>		Mapped NWI Cla	ssification:	PF01A
Are climatic/hydr	ologic cond	litions o	n the site ty	pical for this	time of yea	ear? <u>Yes</u> (If no, expl	ain in remarks)	Eggers & Reed (orimary):	Floodplain Forest
Are vegetation	No	Soil	No	Hvdroloav	No	significantly disturbed?	Are "normal Yes	Eggers & Reed (.	secondary)	
· · · · · · · · · · · · · · · · · · ·	<u></u>				<u></u>	- g	nresent?	Eggers & Reed (i	tertiary):	
Are vegetation	No	Soil	No	Hydrology	No	naturally problematic?	prosont:	Eggers & Reed (quaternary,);

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

Hydrophytic vegetation present?	Yes	General Remarks
Hydric soil present?	Yes	(explain any
Indicators of wetland hydrology present?	Yes	answers in neeueuj:
Is the sampled area within a wetland?	Yes	If yes, optional Wetland Site ID:

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VEGETATION

				<u>Absolute</u>	<u>Dominant</u>	Indicator	50/20 Thresholds:	<u>20%</u>	<u>50%</u>
	Tree Stratum	(Plot Size:	<u>30 ft</u>) <u>% Cover</u>	Species?	<u>Status</u>	Tree Stratum	15	37.5
1.	Populus deltoides			35	Yes	FAC	Sapling/Shrub Stratum	0	0
2.	Acer saccharinum			35	Yes	FACW	Herb Stratum	0	0
3.	Fraxinus pennsylvanica			5	No	FACW	Woody Vine Stratum	0	0
4.				0			Dominance Test Worksheet:		
			Total Cover:	75			Number of Dominant Species		(A)
	Sapling/Shrub Stratum	(Plot Size:	15 ft)			That Are OBL, FACW or FAC:	2	(A)
1		(<u>, , , , , , , , , , , , , , , , , , , </u>	, 			Total Number of Dominant	2	(B)
1. 2				0			Species Across All Strata:		
2.				0			Percent of Dominant Species	100.00%	(A/B)
4				0			That Are OBL, FACW of FAC.		
5.				0			Prevalence Index Worksheet:		
			Total Cover:	0			Total % Cover of:	Multip	oly by:
	Herb Stratum	(Plot Size:	<u>5 ft</u>	1			OBL Species 0	X 1	0
1				/			FACW Species 40	X 2	80
2				0			EAC Species 35	Х 3	105
3.				0				X 4	0
4.				0			FACU Species	× 5	
5.				0			UPL Species0	<u> </u>	<u> </u>
6.				0			Column Totals:75	(A)	185 (B)
7.				0			Prevalence Index =	B/A =	2.47
8.				0			Hydrophytic Vegetation Indicators:		
	<u></u>		Total Cover:	0			No Rapid Test for Hydroph	ytic Vegetation	
	Woody Vine Stratum	(Plot Size:	<u>30 ft</u>) _			Yes Dominance Test is >50%	6	
1							Yes Prevalence Index ≤ 3.0	[1]	
1. 2							No Morphological Adaptati	ons [1] (provide s	upporting data
۷.			Total Cover:	0			In vegetation remarks o	r on a separate sn io Vocatotion [4] (l	leet) Exploin)
			Total Cover.	<u>u</u>					
% B	are Ground in Herb Stratum		_	% Sphagnu	m Moss Cove	r:	disturbed or problematic.	arology must be pre	isent, uniess
Veg	etation Remarks: (include p	hoto numbers	s here or on a separate	sheet)			Hydrophytic vegetation present?	Yes	
Sub	canopy vegetation absent fro	m site due to la	ate season field visit.						

Open in the depth needed to document the indicator or confirm the abstraction of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set of the depth needed to document the indicator or confirm the abstraction of the depth is a set	ence of indicators).
Depth (inches) Matrix Redox Features (inches) Color (moist) % Type 0 - 2 10yr 3/1 100 2 - 12 10yr 4/2 97 10yr 3/3 3	- [d] Lee [0] Texture Demote
(inches) Color (moist) % Color (moist) % Type 0 - 2 10yr 3/1 100 100 10vr 3/3 3	141 Loo 121 Texture Demorte
0 - 2 10yr 3/1 100 2 - 12 10yr 4/2 97 10yr 3/3 3	F[I] LOC [2] Texture Remarks
2 - 12 10yr 4/2 97 10yr 3/3 3	silty clay loam
	C M sandy clay loam
<u>12 - 20</u> <u>10yr 4/2</u> <u>90</u> <u>10yr 4/6</u> <u>10</u>	C M sandy clay loam
·	
·	
] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] L	cation: PL=Pore Lining, M=Matrix.
ydric Soil Indicators: (applicable to all LRRs, unless otherwise noted)	Indicators for Problematic Hydric Soils [3]:
] Histosol (A1) Sandy Gleyed Matrix (S4	Coast Prairie Redox (A16)
Histic Epipedon (A2) Sandy Redox (S5)	Dark Surface (S7)
Black Histic (A3) Stripped Matrix (S6)	Iron-Manganese Masses (F12)
Hvdrogen Sulfide (A4)) Very Shallow Dark Surface (TF12)
Stratified Lavers (A5)	Other (explain in soil remarks)
2 cm Muck (A10)	
Deploted Polony Dark Surface (A11)	
Thick Dark Surface (A12) Thick Dark Surface (A12)	71
Cando Musico (A12)	[3] Indicators of hydrophytic vegetation and wetland hydrolo
Sandy Mucky Mineral (ST)	must be present, unless disturbed or problematic.
oil Remarks:	
VDROLOGY	
Vetland Hydrology Indicators:	
rimary Indicators (minimum of one required: check all that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1)	
High Water Table (A2)	Drainage Patterns (B10)
Contraction (A2) Contraction (A2) True Arrentia Planta (D13)	Drainage Fallenis (DTO)
Saturation (A3) Intel Aquatic Plants (B14) Mater Marke (B1) Lindeapar Cullide Odes (C1)	
Sediment Deposits (B2)	ts (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils	(C6) Geomorphic Position (D2)
Iron Deposits (B5)	✓ FAC-Neutral Test (D5)
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8) Other (explain in remarks)	
ield Observations:	Indicators of wetland hydrology present? Yes
Surface water present? Surface Water Depth (inches):	Describe Recorded Data:
Vater table present? Water Table Depth (inches):	
Saturation present? (includes capillary fringe) 🛛 🖌 Saturation Depth (inches):	0
ecorded Data: 🗌 Aerial Photo 🗌 Monitoring Well 📄 Stream Gauge 🦳 Previo	is Inspections

Project/Site:	<u>LMRWD</u>	Savage	e Dredge Si	<u>te</u>	Applicant/	Owner:	Lower Minnesota River Watershe	City/County:	<u>Savage / S</u>	Scott State:	MN	Sampling Date:	<u>10/30/18</u>
Investigator(s):	<u>DSH</u>				Section:	<u>31</u>		Township:	27	Range:	<u>24</u>	Sampling Point:	<u>SP B</u>
Land Form:	Terrace				Local Rel	<i>ief:</i> <u>Nor</u>	ne	Slope %:	<u>2</u> Se	oil Map Unit Name	: Dorch	ester silty clay loa	<u>am</u>
Subregion (LRR,): <u>M</u>				Latitude:	44.	<u>789196</u>	Longitude:	-93.349772	Datum:	WGS84		
Cowardin Classi	fication:				Circular 39 Classification:					Mapped NWI Cla	assification	<u>n: PF01A</u>	
Are climatic/hydr	ologic cond	itions o	n the site ty	pical for this	time of yea	ar?	<u>Yes</u> (If no, exp	plain in remarks))	Eggers & Reed ((primary):		
Are vegetation	No	Soil	No	Hvdroloav	No	sianific	antly disturbed?	Are "normal	Yes	Eggers & Reed (secondar	y):	
					<u></u>	- 9		present?	25	Eggers & Reed ((tertiary):		
Are vegetation	No	Soil	No	Hydrology	<u>No</u>	naturall	ly problematic?	p		Eggers & Reed ((quaternal	y):	

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

Hydrophytic vegetation present? Hydric soil present?	<u>Yes</u> Yes	General Remarks (explain any
Indicators of wetland hydrology present?	No	answers if needed):
Is the sampled area within a wetland?	<u>No</u>	If yes, optional Wetland Site ID:

VEGETATION

	<u>Tree Stratum</u>	(Plot Size:	<u>30 ft</u>)	<u>Absolute</u> <u>% Cover</u>	<u>Dominant</u> Species?	<u>Indicator</u> <u>Status</u>	50/20 Thresholds: Tree Stratum			<u>20%</u> 12		<u>50%</u> 30
1.	Populus deltoides				30	Yes	FAC	Sapling/Shrub Strat	tum		2		5
2.	Acer saccharinum				25	Yes	FACW	Herb Stratum Woody Vine Stratur	m		0		0
3.	Fraxinus pennsylvanica				5	No	FACW	woody vine Stratur			0		0
4.					0			Dominance Test We	orksheet:				
			45.0	Total Cover:	<u>60</u>			Number of Dominal That Are OBL, FAC	nt Species W or FAC:		3 (A)	
	Sapling/Shrub Stratum	(Plot Size:	<u>15 ft</u>)				Total Number of Do	minant		_		
1.	Acer saccharinum				10	Yes	FACW	Species Across All	Strata:		3 (B)	
2.					0			Percent of Dominar	nt Species	400.00	0/ /		
3.					0			That Are OBL, FAC	W or FAC:	100.00	% (A/B)	
4. 5.					0			Prevalence Index W	orksheet:				
				Total Cover:	10			Total % Cov	ver of:		Multiply	by:	
	Herb Stratum	(Plot Size:	5 ft	1				OBL Species	0	X 1		0	
1				/	0			FACW Species	40	X 2		80	
2.					0			FAC Species	30	Х 3		90	
3.					0				0	X 4		0	
4.					0			FACU Species	0	X 5		0	
5.					0			UPL Species				470	
6.					0			Column Totals:	70	(A)		170	(D)
7.					0			Prev	alence Index =	B/A =		2.43	
8.					0			Hydrophytic Vegetat	tion Indicators:				
				Total Cover:	<u>0</u>			No Rapid Te	est for Hydroph	ytic Vegetat	on		
	Woody Vine Stratum	(Plot Size:	<u>30 ft</u>)				Yes Dominar	nce Test is >50%	6			
1.					0			Yes Prevalen	ce Index ≤ 3.0	[1]			
2.					0				ogical Adaptati ation remarks o	ons [1] (pro r on a separ	vide su ate she	pportinį et)	g data
				Total Cover:	<u>0</u>			No Problem	atic Hydrophyti	c Vegetation	[1] (Ex	plain)	
% B	are Ground in Herb Stratur	n:			% Sphagnui	m Moss Cove	r:	[1] Indicators of hydric disturbed or problemat	soil & wetland hy	drology must	be pres	ent, unle	SS
Veg	Vegetation Remarks: (include photo numbers here or on a separate sheet)							Hydrophytic vegetati	ion present?	Yes			
Hert	paceous vegetation absent fr	om site due to I	ate seas	on field visit.				Ш					

Bite Describe to the daph needed to document the indicator or confirm the abscance of indicators). Depth Matrix Product Patternes 02 10y 31 10 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th>Sampling</th><th>POINC</th></td<>							Sampling	POINC
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Interfact Color (most) N Type II) Color (most) N Standy Gay born 10 21 10y 42 90 10y 46 10 C M< sandy Cay born Image Color (most) N Sandy Color (most) N sandy Cay born Image Color (most) N Sandy Color (most) N Sandy Color (most) N Sandy Color (most) N Sandy Color (most) Image Color (mo	Depth Matrix		Re	edox Featu	res			
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JType: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix. JType: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2] Location: PL=Pore Lining, M=Matrix. JHStess (4) Indicators (replicable to all LRRs, unless otherwise noted) Indicators for Problematic Hydric Soils [3]: JHStess (4) Sandy Rodux (5) Data Surface (57) Black Holic (A2) Satypeed Matrix (50) # con-Manganese Masses (F12) J and Mack Janse (A11) Casery Gloged Matrix (72) Other (explain in soil remarks) J and Mack Janse (A12) Dappleted Matrix (F2) Other (explain in soil remarks) J and Mack Janse (A12) Dappleted Dark Surface (F7) (3) Indicators of hydrophytic vegetation and weiland hydrolog mast be present, unless disturbed or problematic. S con Mucky Peat or Peat (S3) Secondary Indicators (minimum of two required) Surface (F2) Surface Water (A12) Dappleted Dark Surface (A12) Surface (F3) S con Mucky Peat or Peat (S3) Secondary Indicators (minimum of two required) S con Mucky Peat or Peat (S3) Secondary Indicators (minimum of two required) S con Mucky Peat or Peat (S3) Secondary Indicators (B11) Secondary Indicators (B12) S dataeed Mydrology Indicators: Type: <t< td=""><td>· · · · · · · · · · · · · · · · · · ·</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	· · · · · · · · · · · · · · · · · · ·							
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Contraction Propends (B2) Contraction Contractina Contraction Contraction Contraction Conte	estrictive Layer (if present): Type: oil Remarks: //DROLOGY //etland Hydrology Indicators: rimary Indicators (minimum of one required;] Surface Water (A1)] High Water Table (A2)] Saturation (A3)] Water Marks (B1)	check al		oth (inches ves (B9) 3) s (B14) Ddor (C1)	s):	Se	Hydric soil present? condary Indicators (minimum of a Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Cravfish Burrows (C8)	Yes
Image: Difference of Reduced indices in the (04) □ Standard of Subsect Finits (DF) Algal Mat or Crust (B4) □ Recent Iron Reduction in Tilled Soils (C6) □ Geomorphic Position (D2) Iron Deposits (B5) □ Thin Muck Surface (C7) ☑ FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) □ Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) □ Other (explain in remarks) ield Observations: □ Mater Table Depth (inches): □ Describe Recorded Data: Vater Table present? □ Water Table Depth (inches): □ Describe Recorded Data: aturation present? (includes capillary fringe) □ Saturation Depth (inches): □ Describe Recorded Data:	estrictive Layer (if present): Type: oil Remarks: YDROLOGY Yetland Hydrology Indicators: rimary Indicators (minimum of one required;] Surface Water (A1)] High Water Table (A2)] Saturation (A3)] Water Marks (B1)] Sediment Deposits (B2)	check al	Dep I that apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphi	oth (inches ves (B9) 3) s (B14) Odor (C1) eres on Livit	s):	Se	Hydric soil present? condary Indicators (minimum of a Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image	Yes two required)
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ater table present? Water Table Depth (inches): aturation present? (includes capillary fringe) Saturation Depth (inches):	estrictive Layer (if present): Type: pil Remarks: //DROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one required;] Surface Water (A1)] High Water Table (A2)] Saturation (A3)] Water Marks (B1)] Sediment Deposits (B2)] Drift Deposits (B3)] Algal Mat or Crust (B4)] Iron Deposits (B5)] Inundation Visible on Aerial Imagery (B7)] Sparsely Vegetated Concave Surface (B8) [etd Observations:	check al	I that apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plants Hydrogen Sulfide C Oxidized Rhizosphu Presence of Reduct Recent Iron Reduct Thin Muck Surface Gauge or Well Data Other (explain in re	oth (inches ves (B9) 3) s (B14) Odor (C1) eres on Livir ved Iron (C4) tion in Tilled (C7) a (D9) marks)	s): ng Roots (C3)) I Soils (C6)	Se	Hydric soil present? Condary Indicators (minimum of a Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrolo	<u>Yes</u> two required) ry (C9)
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Project/Site:	LMRWD	Savag	e Dredge Si	<u>te</u>	Applicant/	Owner: Lower Min	<u>inesota</u>	City/County	: <u>Savage /</u>	<u>Scott</u>	State:	MN	Sampling Date:	<u>10/30/18</u>
						River wate	ersne					24	Comertine Deliat	CD 0
Investigator(s):	DSH				Section:	<u>31</u>		Township:	<u>27</u>		Range:	24	Sampling Point:	<u>SP C</u>
Land Form:	Terrace				Local Rei	lief: <u>None</u>		Slope %:	<u>6</u> 5	Soil Map Un	nit Name.	<u>Dorch</u>	ester silty clay loa	<u>am</u>
Subregion (LRR)	<u>: M</u>				Latitude:	44.789006		Longitude:	<u>-93.348162</u>	2	Datum:	<u>WGS84</u>		
Cowardin Classii	fication:				Circular 3	9 Classification:				Mapped	NWI Cla	ssification	<u>r: PEM1A</u>	
Are climatic/hydro	ologic cond	itions o	n the site ty	pical for this	time of ye	ar? <u>Yes</u> (li	lf no, expla	in in remark.	s)	Eggers &	& Reed (orimary):		
Are vegetation	Voc	Soil	Vos	Hydrology	No	significantly distur	thad?	Are "norma	Yes	Eggers &	& Reed (secondary	<i>)</i> :	
Are vegetation	163	5011	163	riyurology	110		Deu:	circumstand	ces"	Eggers &	& Reed (tertiary):		
Are vegetation	No	Soil	No	Hydrology	<u>No</u>	naturally problemat	tic?	present?		Eggers &	& Reed (quaternar	y):	

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

Hydrophytic vegetation present?	<u>No</u>	General Remarks	Soils on man made berm directly adjacent to dredge material.
Hydric soil present?	<u>No</u>	(explain any	
Indicators of wetland hydrology present?	No	answers if needed):	
Is the sampled area within a wetland?	<u>No</u>	If yes, optional Wetlar	nd Site ID:

Г

VEGETATION

				Absolute	<u>Dominant</u>	Indicator	50/20 Thresholds:		<u>20%</u>	<u>50%</u>
	Tree Stratum	(Plot Size:	<u>30 ft</u>)	<u>% Cover</u>	Species?	<u>Status</u>	Tree Stratum		0	0
1				0			Sapling/Shrub Stratum		0	0
2				0			Herb Stratum		12	30
2.				0			Woody Vine Stratum		0	0
4				0			Dominance Test Worksheet:			
			Total Cover:	0			Number of Dominant Species			
	Sopling/Shrub Stratum	(Plot Sizer	15 ft	<u>-</u>			That Are OBL, FACW or FAC:		0 (A)	
	Saping/Shrub Stratum	(FIUL SIZE.	<u>1511</u>)				Total Number of Dominant		_	
1.				0			Species Across All Strata:		1 (B)	
2.				0			Percent of Dominant Species		0/ (4/D)	
3.				0			That Are OBL, FACW or FAC:	0.00	% (A/B)	
4.				0			Prevalence Index Worksheet:			
5.			Total Covers	0			Total % Cover of:	1	Multiply by:	
			Total Cover:	<u>U</u>				$\overline{0}$ $\overline{X1}$		0
	Herb Stratum	(Plot Size:	<u>5 ft</u>)				OBL Species			0
1.	Setaria faberi			55	Yes	FACU	FACW Species	0 X2		0
2.	Xanthium strumarium			5	No	FAC	FAC Species	5 X 3	1	15
3.				0			FACU Species	5 <mark>X</mark> 4	22	20
4.				0			UPL Species	0 <mark>X 5</mark>		0
5.				0			Column Totolo		2:	35 (B)
6.				0			Columni Totals.	= ($/$		22
7.				0				(- D/A -		02
8.				0			Hydrophytic Vegetation Indicate	<u>irs:</u>		
			Total Cover:	<u>60</u>			No Rapid Test for Hydro	phytic Vegetati	on	
	Woody Vine Stratum	(Plot Size:	<u>30 ft</u>)				No Dominance Test is >	50%		
1.				0			No Prevalence Index ≤	3.0 [1]		
2.				0			NO Morphological Adap	tations [1] (prov (s or on a senar	/Ide support ate sheet)	ing data
			Total Cover:	0			No Problematic Hydrop	hvtic Vegetatior	ı [1] (Explair)
% E	are Ground in Herb Stratun	n:		% Sphagnui	m Moss Cove	r:	[1] Indicators of hydric soil & wetlan disturbed or problematic.	d hydrology must	be present, u	, nless
Veo	etation Remarks: (include u	ohoto numbers	here or on a separate s	heet)			Hydrophytic vegetation present?	No		
								110		

							Sampling	PUIII.	
ofile Description:	(Describe to the depth	needed to docu	ment the indicator or	confirm th	e abscence o	f indicators).			
Depth _	Matrix		R	edox Featu	res		- /	_	
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type [1]	Loc [2]	lexture	Rema	rks
- 20 2	byr // I	100			<u> </u>		loamy sand		
-					·				
-				_					
					- <u> </u>				
Type: C=Concer	ntration, D=Depletion, R	M=Reduced Mat	rix, MS=Masked Sand	l Grains	[2] Location:	PL=Pore Li	ning, M=Matrix.		
ric Soil Indicato	rs: (applicable to all LR	Rs, unless othe	rwise noted)			Inc	icators for Problematic Hydric S	oils [3]:	
Histosol (A1)			Sandy C	Gleyed Mati	ix (S4)		Coast Prairie Redox (A16)		
Histic Epipedon ((A2)		Sandy F	Redox (S5)			Dark Surface (S7)		
Black Histic (A3)			Stripped	d Matrix (Se)		Iron-Manganese Masses (F12)		
Hydrogen Sulfide	e (A4)		Loamy	Mucky Mine	ral (F1)		Very Shallow Dark Surface (TF12))	
Stratified Layers	(A5)		Loamy	Gleyed Mat	rix (F2)		Other (explain in soil remarks)		
2 cm Muck (A10)			Deplete	d Matrix (F.	3)				
Depleted Below L	Dark Surface (A11)		Redox I	Dark Surfac	e (F6)				
Thick Dark Surfa	ce (A12)		Deplete	d Dark Suri	face (F7)	101	Indiantara of hydrophytic yearott	tion and watland	hudrology
Sandy Mucky Mir	neral (S1)		Redox L	Depressions	s (F8)	[3] mu	st be present, unless disturbed	or problematic.	nyarology
				(
oil Remarks:							.,		
il Remarks: 'DROLOGY	,						.,		
il Remarks: DROLOGY etland Hydrology	r Indicators:								
il Remarks: DROLOGY etland Hydrology imary Indicators (r Indicators: minimum of one require	ed; check all that	t apply)			 	condary Indicators (minimum of	two required)	
il Remarks: DROLOGY atland Hydrology mary Indicators (Surface Water (A	r Indicators: iminimum of one require 1)	ed; check all that	t apply) Water-Stained Lea	ves (B9)		Se	condary Indicators (minimum of Surface Soil Cracks (B6)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table	Indicators: iminimum of one require 1) 2 (A2)	ed; check all that	t apply) Water-Stained Lea Aquatic Fauna (B1)	ves (B9) 3)		Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3)	r Indicators: iminimum of one require 1) 2 (A2)	ed; check all that [[[t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant.	ves (B9) 3) s (B14)		Se.	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1)	Indicators: iminimum of one require 1) e (A2))	ed; check all tha [[[[t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide (ves (B9) 3) s (B14) Ddor (C1)		Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposi	r Indicators: iminimum of one require 1) 2 (A2)) its (B2)	ed; check all that [[[[[t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph	ves (B9) 3) s (B14) Ddor (C1) eres on Livi	ng Roots (C3)	Se.	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image	two required) ery (C9)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposits (B3)	Indicators: iminimum of one require 1) 2 (A2)) its (B2) 3)	ed; check all that [[[[[[[t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph Presence of Reduc	ves (B9) 3) s (B14) Odor (C1) eres on Livi sed Iron (C4	ng Roots (C3)	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1)	two required) ery (C9)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposit Drift Deposits (B3 Algal Mat or Crus	r Indicators: iminimum of one require 1) 2 (A2) 3 its (B2) 3) 5t (B4)	ed; check all that [[[[[[[[[[[[[[[[[[[t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph Presence of Reduc Recent Iron Reduc	ves (B9) 3) S (B14) Odor (C1) eres on Livi ced Iron (C4 tion in Tilled	ng Roots (C3)) 1 Soils (C6)	Se.	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposit Drift Deposits (B3 Algal Mat or Crus Iron Deposits (B5	Indicators: iminimum of one require 1) 2 (A2)) its (B2) 3) st (B4) 5)	ed; check all tha [[[[[[[[[[[[[[t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduc Recent Iron Reduc Thin Muck Surface	ves (B9) 3) S (B14) Odor (C1) eres on Livi ered Iron (C4 tion in Tilled (C7)	ng Roots (C3)) 1 Soils (C6)	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposit Drift Deposits (B3 Algal Mat or Crus Iron Deposits (B5 Inundation Visible	Indicators: iminimum of one require 1) 2 (A2) (A2) (Is (B2) 3) 51 (B4) 5) 6 on Aerial Imagery (B7)	ed; check all that [[[[[[[[[[[[[[[[[[[t apply) Water-Stained Lea Aquatic Fauna (B1) True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph Presence of Reduc Recent Iron Reduc Thin Muck Surface Gauge or Well Dat.	ves (B9) 3) 5 (B14) Odor (C1) eres on Livi ced Iron (C4 tion in Tilleo (C7) a (D9)	ng Roots (C3)) 1 Soils (C6)	Se.	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposit Nift Deposits (B3 Algal Mat or Crus Iron Deposits (B3 Inundation Visible Sparsely Vegetal	Indicators: iminimum of one require 1) 2 (A2) its (B2) 3) st (B4) 5) e on Aerial Imagery (B7) ied Concave Surface (B8)	ed; check all tha [[[[[[]]]	t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduce Recent Iron Reduce Thin Muck Surface Gauge or Well Data Other (explain in re	ves (B9) 3) s (B14) Odor (C1) eres on Livi reed Iron (C4 tion in Tilled (C7) a (D9) emarks)	ng Roots (C3)) I Soils (C6)	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	two required)	
il Remarks: DROLOGY etland Hydrology imary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposit Drift Deposits (B3 Algal Mat or Crus Iron Deposits (B5 Inundation Visible Sparsely Vegetat eld Observations:	Indicators: minimum of one require 1) 2 (A2) 3) (ts (B2) 3) st (B4) 5) e on Aerial Imagery (B7) red Concave Surface (B8)	ed; check all that [[[[[[[]]]	t apply) Water-Stained Lea Aquatic Fauna (B1) True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph Presence of Reduc Recent Iron Reduc Thin Muck Surface Gauge or Well Dat. Other (explain in re	ves (B9) 3) s (B14) Odor (C1) eres on Livi ced Iron (C4 tion in Tilleo (C7) a (D9) emarks)	ng Roots (C3)) 1 Soils (C6)	Sea	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	two required)	
Algal Mat or Cruss Inundation Visible Sparsely Vegetal Drift Deposits (B3 Inundation Visible Sparsely Vegetal Inface water prese	Indicators: iminimum of one require 1) (A2) (A2) (IS (B2) (IS (B2) (IS (B4)) (IS (B4))	ed; check all tha [[[[[[]]]	t apply) Water-Stained Lea Aquatic Fauna (B1. True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduc Recent Iron Reduc Thin Muck Surface Gauge or Well Data Other (explain in re	ves (B9) 3) s (B14) Odor (C1) eres on Livi reed Iron (C4 tion in Tilled (C7) a (D9) emarks) (inches):	ng Roots (C3)) t Soils (C6)	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrole Describe Recorded Data:	two required) ery (C9) ogy present?	
A ligal Mater Table Saturation (A3) Water Marks (B1) Sediment Deposits Algal Mat or Crus Iron Deposits (B3) Inundation Visible Sparsely Vegetal Sparsely Vegetal Spar	Indicators: iminimum of one require 1) 2 (A2) 3) 3) 51 (B4) 5) e on Aerial Imagery (B7) bed Concave Surface (B8) ont? ?	ed; check all that [[[[[[[]]]]]	t apply) Water-Stained Lea Aquatic Fauna (B1) True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph Presence of Reduc Recent Iron Reduc Recent Iron Reduc Gauge or Well Dat. Other (explain in reference) Surface Water Depth (in	ves (B9) 3) s (B14) Odor (C1) eres on Livi ced Iron (C4 tion in Tilleo (C7) a (D9) emarks) (inches): ches):	ng Roots (C3)) 1 Soils (C6)	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrolo Describe Recorded Data:	two required)	<u>No</u>
il Remarks: DROLOGY etland Hydrology mary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1, Sediment Deposits Drift Deposits (B2 Inundation Visible Sparsely Vegetat Id Observations: rface water present ter table present	Indicators: iminimum of one require 1) 2 (A2)) (K2)) (K4)) (K4) <	ed; check all that [[[[[[[]]]]]]]]]]]]	t apply) Water-Stained Lea Aquatic Fauna (B1) True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosphi Presence of Reduc Recent Iron Reduc Gauge or Well Data Other (explain in reference) Surface Water Depth (inclesting)	ves (B9) 3) s (B14) Odor (C1) eres on Livi cred Iron (C4 tion in Tilled (C7) a (D9) emarks) (inches): ches): hes):	ng Roots (C3)) 1 Soils (C6)	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	two required) ery (C9) ogy present?	
il Remarks: DROLOGY etland Hydrology mary Indicators (Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposit Drift Deposits (B3 Algal Mat or Crus Iron Deposits (B3 Inundation Visible Sparsely Vegetal Id Observations: rface water present turation present? corded Data:	Indicators: iminimum of one require 1) 2 (A2) 3) its (B2) 3) it (B4) 5) e on Aerial Imagery (B7) bed Concave Surface (B8) ont? ? (includes capillary fring Aerial Photo	ed; check all that [[[[[[]]] []] []] []] [] []] []] []] []] []]] []]]]]]]]]]]]]]]]]]]]	t apply) Water-Stained Lea Aquatic Fauna (B1) True Aquatic Plant. Hydrogen Sulfide C Oxidized Rhizosph Presence of Reduc Recent Iron Reduc Recent Iron Reduc Gauge or Well Dat. Other (explain in reference) Surface Water Depth (in Saturation Depth (incle) Yell Stream Gau	ves (B9) 3) s (B14) Odor (C1) eres on Livi ced Iron (C4 tion in Tilleo (C7) a (D9) emarks) (inches): ches): hes): uge	ng Roots (C3)) 1 Soils (C6) 	Se	condary Indicators (minimum of Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrolo Describe Recorded Data:	two required)	<u>No</u>

Project/Site:	<u>LMRWD</u>	Savag	e Dredge	<u>Site</u>	Applicant/	Owner: Lower Minr River Wate	<u>iesota</u> rshe	City/County: <u>Sa</u>	avage / Scott	t State:	<u>MN</u>	Sampling Date:	<u>10/30/18</u>
Investigator(s):	<u>DSH</u>				Section:	<u>31</u>		Township: <u>27</u>		Range:	<u>24</u>	Sampling Point:	<u>SP D</u>
Land Form:	Depress	ion			Local Rel	<i>ief:</i> <u>None</u>		<i>Slope %:</i> <u>0</u>	Soil N	lap Unit Name:	<u>Dorche</u>	ester silty clay loa	<u>im</u>
Subregion (LRR,	<u>): M</u>				Latitude:	44.788873		Longitude: <u>-93.</u>	<u>348216</u>	Datum:	<u>WGS84</u>		
Cowardin Classi	fication:	PEM	<u>1A</u>		Circular 3	9 Classification:	<u> Type 1</u>		Mé	apped NWI Cla	ssification	<u>PEM1A</u>	
Are climatic/hydr	ologic cond	litions o	n the site	typical for this	time of yea	ar? <u>Yes</u> (If	no, expla	ain in remarks)	Eg	ngers & Reed (j	primary):	Shallow Ma	<u>rsh</u>
Are vegetation	No	Soil	No	Hydrology	No	significantly disturb	ed?	Are "normal	<u>Yes</u> Eg	gers & Reed (s	secondary	<i>):</i>	
<u>.</u>				<u> </u>				nresent?	Eg	gers & Reed (i	tertiary):		
Are vegetation	<u>No</u>	Soil	No	Hydrology	No	naturally problemati	c?	present:	Eg	gers & Reed (quaternary	<i>(</i>):	

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

Hydrophytic vegetation present?	Yes	General Remarks
Hydric soil present?	Yes	(explain any
Indicators of wetland hydrology present?	Yes	answers in neeueuj:
Is the sampled area within a wetland?	Yes	If yes, optional Wetland Site ID:

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VEGETATION

				Absolute	Dominant	Indicator	50/20 Thresholds:			<u>20%</u>	<u>50%</u>
	Tree Stratum	(Plot Size:	<u>30 ft</u>)	% Cover	Species?	<u>Status</u>	Tree Stratum			0	0
							Sapling/Shrub Strate	ım		0	0
1.				0			Herb Stratum			15	37.5
2.				0			Woody Vine Stratum	1		0	0
3.				0							
4.				0			Dominance Test Wo	rksheet:			
			Total Cover:	<u>0</u>		L	Number of Dominan	t Species		4 (4)	
	Sanling/Shrub Stratum	(Plot Size:	15 ft)				That Are OBL, FACV	V or FAC:		1 (A)	
		(1.100.0120)	<u>, 10 m</u>				Total Number of Dor	ninant		4 (D)	
1.				0			Species Across All	Strata:		1 (<i>B</i>)	
2.				0			Percent of Dominant	Species			
3.				0			That Are OBL, FACV	V or FAC:	100.0	0% (A/B))
4.				0							
5.				0			Prevalence Index Wo	orksheet:			
			Total Cover:	<u>0</u>			Total % Cove	er of:		Multiply by:	
	Herb Stratum	(Plot Size:	<u>5 ft</u>				OBL Species	70	X 1		70
1.	Carex stricta		,	70	Yes	OBL	FACW Species	5	X 2		10
2.	Carex vulpinoidea			5	No	FACW	FAC Species	0	Х 3		0
3.				0			FACII Species	0	X 4		0
4.				0				0	X 5		0
5.				0			OPL Species	75	(A)		80 (B)
6.				0			Column Totals:		(~)		
7.				0			Preva	lence Index =	B/A =	1.	.07
8.				0			Hydrophytic Vegetati	on Indicators:			
			Total Cover:	75		L	No Rapid Tes	t for Hydroph	ytic Vegeta	tion	
	Woodv Vine Stratum	(Plot Size:	30 ft)				Yes Dominand	e Test is >50%	6		
1		•					Yes Prevalence	e Index ≤ 3.0	[1]		
1.							No Morpholo	gical Adaptati	ons [1] (pr	ovide suppo	rting data
Ζ.				0			in vegetat	ion remarks o	r on a sepa	rate sheet)	
			Total Cover:	<u>0</u>			No Problema	tic Hydrophyti	c Vegetatio	on [1] (Explai	n)
% E	are Ground in Herb Stratun	n:	_	% Sphagnu	m Moss Cove	r:	[1] Indicators of hydric s disturbed or problemation	oil & wetland hy c.	drology mus	t be present, i	unless
Veg	etation Remarks: (include p	ohoto numbers	s here or on a separate :	sheet)			Hydrophytic vegetatio	n present?	Yes		
Due	e to late season of site visit the	ere are likelv m	ore diverse species at thi	s location than	could be ider	tified.					

	nu (Departies to the death	onded to d	commont the indiration	onfirm 4L	abaaaa	findlester (
tile Description Depth	n: (Describe to the depth n Matrix	eeded to d	ocument the indicator or o Re	onfirm the dox Featur	e abscence o res	f indicators).		
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
0 - 3	10yr 2/1	100					muck	
3 - 12	10yr 4/1	90	10yr 4/6	10	С	PL	sandy clay loam	-
-								-
Type: C=Conc	entration, D=Depletion, RM	l=Reduced	Matrix, MS=Masked Sand	Grains	[2] Location:	: PL=Pore Li	ning, M=Matrix.	
dric Soil Indica	tors: (applicable to all LRR	s, unless (otherwise noted)			Inc	licators for Problematic Hydric So	oils [3]:
Histosol (A1)			Sandy G	leyed Matri	ix (S4)		Coast Prairie Redox (A16)	
Histic Epipedor	n (A2)		Sandy R	edox (S5)			Dark Surface (S7)	
Black Histic (A3	3)		Stripped	Matrix (S6))		Iron-Manganese Masses (F12)	
] Hydrogen Sulfid	de (A4)		Loamy N	Nucky Miner	ral (F1)		Very Shallow Dark Surface (TF12)	
Stratified Layer	rs (A5)		Loamy G	Gleyed Matri	ix (F2)		Other (explain in soil remarks)	
] 2 cm Muck (A1	0)		✓ Depleted	- I Matrix (F3,)			
] Depleted Below	v Dark Surface (A11)		Redox D	ark Surface	e (F6)			
] Thick Dark Suri	face (A12)		Depleted	l Dark Surfa	ace (F7)			
Sandy Mucky N	Aineral (S1)		Redox D	epressions	(F8)	[3]	Indicators of hydrophytic vegeta	tion and wetland hydrolog
E om Musku De				·		inc	si be present, unless disturbed o	n problematic.
estrictive Layer (eat or Peat (S3) (if present): Type: No	ot observed	Dep	th (inches):		Hydric soil present?	Yes
estrictive Layer (oil Remarks:	eat or Peat (S3)	ot observed	Дер	th (inches):		Hydric soil present?	<u>Yes</u>
estrictive Layer (bil Remarks: DROLOG	eat or Peat (S3) (if present): Type: No	ot observed	Dep	th (inches):		Hydric soil present?	<u>Yes</u>
estrictive Layer (bil Remarks: /DROLOG fetland Hydrolog	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required	ot observed	Dep	th (inches):		Hydric soil present?	Yes
estrictive Layer (bil Remarks: DROLOG etland Hydrolog imary Indicators	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1)	ot observed	Dep	th (inches):	Se	Hydric soil present? Condary Indicators (minimum of t	Yes two required)
estrictive Layer (bil Remarks: /DROLOG /etland Hydrolog rimary Indicators] Surface Water Tat	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2)	ot observed	Dep	th (inches th (inches (B9)):	Se	Hydric soil present? Condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10)	Yes
estrictive Layer (oil Remarks: /DROLOG /etland Hydrolog rimary Indicators] Surface Water] High Water Tat] Saturation (A3)	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2)	ot observed	Dep that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants	th (inches th (inches (B9) (B14)):	Se	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Drv-Season Water Table (C2)	Yes
estrictive Layer (bil Remarks: /DROLOG /etland Hydrolog rimary Indicators] Surface Water] High Water Tat] Saturation (A3)] Water Marks (E	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) 31)	ot observed		th (inches th (inches es (B9) (B14) dor (C1)):	Se	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Cravfish Burrows (C8)	Yes
estrictive Layer (bil Remarks: /DROLOG etland Hydrolog rimary Indicators] Surface Water] Surface Water Tat] Saturation (A3)] Water Marks (E] Sediment Depo	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) 131) psits (B2)	ot observed	Dep that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe	th (inches th (inches res (B9) (B14) dor (C1) res on Livir):	Se	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Image	Yes two required)
estrictive Layer (oil Remarks: /DROLOG /etland Hydrolog rimary Indicators Surface Water High Water Tat Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) S1) psits (B2) (B3)	ot observed	that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce	th (inches th (inches res (B9) t) (B14) dor (C1) res on Livir ed Iron (C4));	Se	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagen Stunted or Stressed Plants (D1)	Yes two required)
estrictive Layer (oil Remarks: /DROLOG /etland Hydrolog rimary Indicators Surface Water High Water Tat Saturation (A3) Water Marks (E Sediment Depc Drift Deposits (Algal Mat or Cri	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) (A1) ble (A2) (B3) ust (B4)	ot observed	Ithat apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct	th (inches th (inches res (B9) (B14) dor (C1) res on Livir ed Iron (C4) ion in Tilled); 	Se	Hydric soil present? Condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagen Stunted or Stressed Plants (D1) Geomorphic Position (D2)	<u>Yes</u> two required)
estrictive Layer (oil Remarks: //DROLOG /etland Hydrolog rimary Indicators / Surface Water Tal. / High Water Tal. / Saturation (A3) / Water Marks (E / Sediment Depo / Drift Deposits (i / Algal Mat or Cr. / Iron Deposits (i	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5)	bt observed	that apply) Water-Stained Leav Aquatic Fauna (B13 True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct Thin Muck Surface (th (inches th (inches res (B9) (B14) dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7)); 	Se	Hydric soil present? Condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagen Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	Yes two required)
estrictive Layer (cil Remarks: /DROLOG /etland Hydrolog /etland Hydrolog /etla	eat or Peat (S3) (if present): Type: No Y y Indicators: a (minimum of one required (A1) ble (A2) ble (A2) 131) 15its (B2) B3) 15its (B4) B5) ble on Aerial Imagery (B7)	ot observed	that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduct Recent Iron Reduct Thin Muck Surface (Gauge or Well Data	th (inches th (inches res (B9)) (B14) dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9)); ng Roots (C3)) Soils (C6)	Se 	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imager Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	<u>Yes</u> two required) ry (C9)
estrictive Layer (bil Remarks: /DROLOG /etland Hydrolog /etland Hydrolog	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5) ble on Aerial Imagery (B7) tated Concave Surface (B8)	t; check all	that apply) water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct Thin Muck Surface (Gauge or Well Data Other (explain in rei	th (inches th (inches res (B9)) (B14) dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9) marks)); ng Roots (C3)) ' Soils (C6)	Se Se V V V V V V	Hydric soil present? Condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imager Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	Yes two required)
estrictive Layer (oil Remarks: /DROLOG /etland Hydrolog rimary Indicators Surface Water High Water Tat Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cri Inon Deposits (I Sparsely Vegel	eat or Peat (S3) (if present): Type: No Y y Indicators: a (minimum of one required (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5) ble on Aerial Imagery (B7) tated Concave Surface (B8) s:	ot observed	that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reducts Presence of Reducts Thin Muck Surface (Gauge or Well Data Other (explain in reduct)	th (inches th (inches (es (B9)) (B14) dor (C1) res on Livir dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9) marks)); ng Roots (C3)) Soils (C6)	Se	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imager Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	Yes
estrictive Layer (bil Remarks: /DROLOG /etland Hydrolog rimary Indicators] Surface Water Tat] High Water Tat] Saturation (A3)] Water Marks (E] Sediment Depo] Drift Deposits (I] Algal Mat or Cri] Iron Deposits (I] Iron Deposits (I] Inundation Visit] Sparsely Veget urface water pres	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5) ble on Aerial Imagery (B7) tated Concave Surface (B8) s: sent?	ot observed	that apply) that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct Thin Muck Surface (Gauge or Well Data Other (explain in rei	th (inches th (inches res (B9) (B14) dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9) marks)); ng Roots (C3) ' ' Soils (C6)	Se	Hydric soil present? Example 2 Condary Indicators (minimum of the secondary Indicators of wetland hydrology (minimum of the secondary In	Yes two required) ry (C9)
estrictive Layer (il Remarks: /DROLOG /etland Hydrolog rimary Indicators Surface Water High Water Tat Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cri Algal Mat or Cri Iron Deposits (I Sparsely Vegel eld Observation: urface water present // atter table present // atte	eat or Peat (S3) (if present): Type: No Y y Indicators: a (minimum of one required (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5) ble on Aerial Imagery (B7) tated Concave Surface (B8) s: sent? nt?	ot observed <u> <u> </u> </u>	that apply) that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reducte Recent Iron Reducte Thin Muck Surface (Gauge or Well Data Other (explain in ref Surface Water Depth (in Water Table Depth (inc)	th (inches th (inches res (B9)) (B14) dor (C1) res on Livir dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9) marks) inches):):	Se	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imager Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrolog Describe Recorded Data:	Yes two required) ry (C9)
estrictive Layer (oil Remarks: /DROLOG /etland Hydrolog /etland Hydrolog /etland Hydrolog /etland Hydrolog /etland Hydrolog /etland Hydrolog /etland Hydrolog / Surface Water Tat Saturation (A3) /etland Water Tat Saturation (A3) /etland Water Tat Saturation (A3) /etland Hydrolog /etland Hydrolo	eat or Peat (S3) (if present): Type: No Y y Indicators: s (minimum of one required (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5) ble on Aerial Imagery (B7) tated Concave Surface (B8) s: sent? nt? t? (includes capillary fringe	t; check all	that apply) that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduce Recent Iron Reduct Thin Muck Surface (G) Gauge or Well Data Other (explain in ref Surface Water Depth (inc Saturation Depth (inch	th (inches th (inches res (B9) t) (B14) dor (C1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9) marks) inches): thes): es):);		Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Images Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrolog Describe Recorded Data:	Yes two required) ry (C9) rgy present? Yes
estrictive Layer (iil Remarks:	if present): Type: No if present): Type: No y Indicators: s (minimum of one required (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (B3) ust (B4) B5) ble on Aerial Imagery (B7) tated Concave Surface (B8) s: sent? nt? t? (includes capillary fringed	bt observed d; check all √ 2) √ Monitorin	that apply) Water-Stained Leav Aquatic Fauna (B13) True Aquatic Plants Hydrogen Sulfide O Oxidized Rhizosphe Presence of Reduct Thin Muck Surface (Gauge or Well Data Other (explain in ref Surface Water Depth (in Saturation Depth (inch The Well	th (inches th (inches res (B9)) (B14) (B14) (D1) res on Livir ed Iron (C4) ion in Tilled (C7) (D9) marks) inches): es): ae):	Se Se Se Se Se Se Se Se Se Se Se Se Se S	Hydric soil present? condary Indicators (minimum of t Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imager Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5) Indicators of wetland hydrolog Describe Recorded Data:	Yes two required) ry (C9)

Project/Site:	<u>LMRWD</u>	Savage	e Dredge Si	<u>te</u>	Applicant/	'Owner: <u>L</u> F	<u>ower Minnesota</u> River Watershe	City/County	: <u>Savage / S</u>	<u>Scott</u> .	State:	<u>MN</u>	Sampling Date:	<u>11/30/18</u>
Investigator(s):	<u>DSH</u>				Section:	<u>31</u>		Township:	<u>27</u>		Range:	<u>24</u>	Sampling Point:	<u>SP E</u>
Land Form:	Depress	ion			Local Rel	<i>ief:</i> <u>None</u>		Slope %:	<u>1</u> Se	oil Map Un	it Name.	Dorch	ester silty clay loa	<u>am</u>
Subregion (LRR,	<u>): M</u>				Latitude:	44.79	0435	Longitude:	<u>-93.348834</u>		Datum:	<u>WGS84</u>		
Cowardin Classi	fication:				Circular 3	9 Classific	ation:			Mapped I	VWI Cla	ssification	<u>PEM1A</u>	
Are climatic/hydr	ologic cond	litions of	n the site ty	pical for this	time of yea	ar? <u>`</u>	<u>Yes</u> (If no, expla	ain in remark:	s)	Eggers &	Reed (primary):		
Are vegetation	No	Soil	Yes	Hvdroloav	Yes	sianificai	ntlv disturbed?	Are "normal	<u>Yes</u>	Eggers &	Reed (secondary	<i>():</i>	
								present?	.85	Eggers &	Reed (tertiary):		
Are vegetation	<u>No</u>	Soil	<u>No</u>	Hydrology	<u>No</u>	naturally	problematic?	,		Eggers &	Reed (quaternar	y):	

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

Hydrophytic vegetation present?	<u>Yes</u>	General Remarks	Hydrology at this location appears to be modified by adjacent man made water retaining structures. Soils at this location also appear to have been disturbed with mixed horizons and sandy deposits.
Hydric soil present?	<u>No</u>	(explain any	
Indicators of wetland hydrology present?	Yes	answers if needed):	
Is the sampled area within a wetland?	<u>No</u>	lf yes, optional Wetla	nd Site ID:

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VEGETATION

				Absolute	Dominant	Indicator	50/20 Thresholds:			<u>20%</u>	<u>50%</u>
	<u>Tree Stratum</u>	(Plot Size:	<u>30 ft</u>)	<u>// Cover</u>	<u>Species ?</u>	Status	Tree Stratum			3.4	8.5
1.	Populus deltoides			10	Yes	FAC	Sapling/Snrub Stratum			0	0
2.	Acer saccharinum			5	Yes	FACW	Woody Vine Stratum				
3.	Ulmus rubra			2	No	FAC	woody vine ou atain				
4.				0			Dominance Test Works	heet:			
			Total Cover:	<u>17</u>			Number of Dominant S	pecies		A (A)	
	Sapling/Shrub Stratum	(Plot Size:	<u>15 ft</u>)				That Are OBL, FACW o	r FAC:		4 (A)	
1.				0			Total Number of Domin	ant		4 (B)	
2.				0			Species Across All Stra	ita:		_ ()	
3.				0			Percent of Dominant S That Are OBL, FACW o	vecies r FAC:	100.0	0% (<mark>A/B</mark>))
4.				0							
5.				0			Prevalence Index Works	sheet:			
			Total Cover:	<u>0</u>			Total % Cover o	f:		Multiply by:	
	Herb Stratum	(Plot Size:	<u>5 ft</u>				OBL Species	0	X 1 =		0
1	Phalaris arundinacea	-	/	45	Yes	FACW	FACW Species	50	X 2 =	1	00
2	Poa pratensis			20	Yes	FAC	EAC Species	32	X 3 =		96
3.								0	X 4 =		0
4.				0			FACU Species		X 5 -		0
5.				0			UPL Species		× 3 -		
6.				0			Column Totals:	82	(A)	1	96 (B)
7.				0			Prevalen	ce Index =	B/A =	2.	.39
8.				0			Hydrophytic Vegetation	Indicators:			
			Total Cover:				No Rapid Test f	or Hydroph	ytic Vegetai	ion	
	Woody Vine Stratum	(Plot Size:	<u>30 ft</u>)				Yes Dominance	<mark>7est is</mark> >50	6		
1.				0			Yes Prevalence I	ndex ≤ 3.0	[1]		
2.				0			No Morphologic	al Adaptati 1 remarks c	ons [1] (pro r on a sena	vide suppor rate sheet)	rting data
			Total Cover:	0			No Problematic	Hvdrophvt	ic Vegetatio	n [1] (Explai	n)
% E	Pare Ground in Herb Stratu	m:	_	% Sphagnu	m Moss Cove	r:	[1] Indicators of hydric soil disturbed or problematic.	& wetland hy	/drology mus	t be present, u	inless
Veg	etation Remarks: (include	photo numbers	s here or on a separate s	sheet)			Hydrophytic vegetation p	resent?	Yes		
Late	e season vegetation likely do	es not represen	t the full set of species wh	ich may be id	entified at this	location earlier i	in the growing season.				

OIL				Samp	ling Point:
Profile Description: (Describe to the depth ne	eeded to document the indicator o	r confirm the abscence o	f indicators)		
Depth Matrix		Redox Features			
(inches) Color (moist)	% Color (moist)	% Type [1]	Loc [2]	Texture	Remarks
0 - 4 10yr 6/1	75 10yr 3/1	25		sandy loam	
4 - 13 10yr 4/2	85 10yr 4/4	10		sandy clay loam	10yr 3/1 5%
13 - 21 10yr 4/2	80 10yr 3/1	15		sandy clay loam	10yr 4/6 5%
	·				
Type: C=Concentration, D=Depletion, RM=	=Reduced Matrix, MS=Masked Sar	d Grains [2] Location:	PL=Pore L	ining, M=Matrix.	
dric Soil Indicators: (applicable to all LRR	s, unless otherwise noted)		Inc	dicators for Problematic Hydr	ic Soils [3]:
Histosol (A1)	Sandy	Gleyed Matrix (S4)		Coast Prairie Redox (A16)	
Histic Epipedon (A2)	Sandy	Redox (S5)		Dark Surface (S7)	
Black Histic (A3)	Strippe	ed Matrix (S6)		Iron-Manganese Masses (F12)
Hvdroaen Sulfide (A4)	Loam	(Muckv Mineral (F1)		Verv Shallow Dark Surface (T	F12)
Stratified Layers (A5)		Gleved Matrix (F2)		Other (explain in soil remarks)	· ·
2 cm Muck (A10)		ed Matrix (E3)		, (<i></i>	
Depleted Balow Dark Surface (A11)	Depice Depice Depice	Dark Surface (F6)			
Thick Dark Surface (A12)		and Dark Surface (F7)			
	Depier	eu Dark Sullace (F7)	[3]	Indicators of hydrophytic ve	getation and wetland hydrology
		D (EQ)			
Sandy Mucky Mineral (S1)	Redox	Depressions (F8)	m	ust be present, unless disturb	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3)	Redox	Depressions (F8)	m	ust be present, unless disturb	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3)	Redox	Depressions (F8)	mi	ust be present, unless disturb	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present):	D.	Depressions (F8) epth (inches):		ust be present, unless disturb Hydric soil present?	ed or problematic. <u>No</u>
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: bil Remarks: Soils appear modified by the v	Redox	<i>epth (inches):</i>	nsistent.	ust be present, unless disturb Hydric soil present?	ed or problematic. <u>No</u>
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) sstrictive Layer (if present): Type: iil Remarks: Soils appear modified by the v 'DROLOGY	Redox	<i>Depressions (F8) epth (inches):</i> and appear mixed and inco	insistent.	ust be present, unless disturb Hydric soil present?	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: iil Remarks: Soils appear modified by the v 'DROLOGY atland Hydrology Indicators:	Redox	<i>Depressions (F8)</i>	insistent.	ust be present, unless disturb Hydric soil present?	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: mil Remarks: Soils appear modified by the v 'DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required)		<i>Depressions (F8)</i>	Insistent.	ust be present, unless disturb Hydric soil present?	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) strictive Layer (if present): Type: il Remarks: Soils appear modified by the v 'DROLOGY stland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1)		epth (inches):	Insistent.	ust be present, unless disturb Hydric soil present? condary Indicators (minimum	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) sstrictive Layer (if present): Type: iil Remarks: Soils appear modified by the v 'DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1)		<i>epth (inches):</i> and appear mixed and incc <i>aves (B9)</i>	insistent.	ust be present, unless disturb Hydric soil present? condary Indicators (minimum Surface Soil Cracks (B6)	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) strictive Layer (if present): Type: il Remarks: Soils appear modified by the v 'DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1) High Water Table (A2)		<i>epth (inches):</i> and appear mixed and inco <i>aves (B9)</i> 13)	Insistent.	ust be present, unless disturb Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10)	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: sil Remarks: Soils appear modified by the v 'DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1) High Water Table (A2) Saturation (A3)		<i>Depressions (F8) epth (inches):</i> and appear mixed and inco <i>aves (B9) 13) nts (B14)</i>	Insistent.	ust be present, unless disturb Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: mil Remarks: Soils appear modified by the v VDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Depressions (F8) epth (inches): and appear mixed and inco aves (B9) 13) tls (B14) Odor (C1)	insistent.	Hydric soil present? Hydric soil present? Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: bil Remarks: Soils appear modified by the v DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		Depressions (F8) epth (inches): and appear mixed and inco aves (B9) 13) nts (B14) Odor (C1) heres on Living Roots (C3)	nsistent.	Hydric soil present, unless disturb Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Im	ed or problematic.
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: iil Remarks: Soils appear modified by the v 'DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Depressions (F8) epth (inches): and appear mixed and inco aves (B9) 13) ts (B14) Odor (C1) heres on Living Roots (C3) iced Iron (C4)	Insistent.	Hydric soil present? Hydric soil present? Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial In: Stunted or Stressed Plants (D	ed or problematic. <u>No</u> of two required)
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) strictive Layer (if present): Type: iil Remarks: Soils appear modified by the v DROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required, Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		Depressions (F8) epth (inches): and appear mixed and inco aves (B9) aves (B9) aves (B14) Odor (C1) heres on Living Roots (C3) iced Iron (C4) iction in Tilled Soils (C6)	Insistent.	Hydric soil present? Hydric soil present? Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Im Stunted or Stressed Plants (D Geomorphic Position (D2)	ed or problematic. <u>No</u> of two required)
Sandy Mucky Mineral (S1) 5 cm Mucky Peat or Peat (S3) estrictive Layer (if present): Type: pastrictive Layer (if present): Type:		Depressions (F8) epth (inches): and appear mixed and inco aves (B9) 13) nts (B14) Odor (C1) heres on Living Roots (C3) iced Iron (C4) ction in Tilled Soils (C6) e (C7)	nsistent.	Hydric soil present? Hydric soil present? Hydric soil present? Condary Indicators (minimum Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Im Stunted or Stressed Plants (D Geomorphic Position (D2) FAC-Neutral Test (D5)	ed or problematic. <u>No</u> of two required) pagery (C9) 1)
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Hydrology Remarks:	Large man made earthen water retaining ponds have been constructed adjacent and above this location topographically. The depression located at this sampling point
	is suited to collect seeping water from these structures.

Appendix B

Site Photographs

Appendix B – Savage Dredge Site Wetland Delineation Site Photos October 30, 2018



Appendix B – Savage Dredge Site Wetland Delineation Site Photos October 30, 2018

Photo 4	
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Modified hydrology near Potential	
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Appendix C

Antecedent Precipitation Conditions

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources University of Minnesota

home | current conditions | journal | past data | summaries | agriculture | other sites | about us f

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: Scotttownship number: 115Ntownship name: unnamedrange number: 21Wnearest community: Port Cargillsection number: 9

Aerial photograph or site visit date: Tuesday, October 30, 2018

Score using 1981-2010 normal period

multi-month score:	40		
monthly score	3 * <mark>3</mark> = 9	2 * <mark>1</mark> = 2	1 * 2 = 2
type of month: dry normal wet	wet	dry	normal
there is a 30% chance this location will have more than:	4.58	5.58	4.67
there is a 30% chance this location will have less than:	2.09	3.49	2.89
estimated precipitation total for this location:	6.45	2.35	3.19
values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: September 2018	second prior month: August 2018	third prior month: July 2018

multi-month score:			12 (Normal)
6 to 9 (dry)	10 to 14 (normal)	15 to 18 (wet)	13 (Normal)

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- Evaluating Antecedent Precipitation Conditions (BWSR)

Appendix D

Historic Aerial Photography Review

Barr Footer: ArcGIS 10.6, 2019-01-29 13:44 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2008_August.mxd User: EMA







Barr Footer: ArcGIS 10.6, 2019-01-29 13:44 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2010_September.mxd User: EMA



Barr Footer: ArcGIS 10.6, 2019-01-29 14:17 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2011_.mxd User: EMA









Barr Footer: ArcGIS 10.6, 2019-01-29 13:42 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2015_April.mxd User: EMA







Barr Footer: ArcGIS 10.6, 2019-01-29 13:42 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2016_May.mxd User: EMA



Barr Footer: ArcGIS 10.6, 2019-01-29 13:41 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2016_October.mxd User: EMA



Barr Footer: ArcGIS 10.6, 2019-01-29 13:42 File: I\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2017_April.mxd User: EMA



Barr Footer: ArcGIS 10.6, 2019-01-29 14:34 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2017_October.mxd User: EMA



Barr Footer: ArcGIS 10.6, 2019-01-29 13:43 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2018_April.mxd User: EMA



Barr Footer: ArcGIS 10.6, 2019-01-29 13:42 File: I:\Client\LowerMinnesotaWD\Work_Orders\23701078 Dredge Site\Maps\Wetland_Delineation\Potential_Wetland_3_2018_September.mxd User: EMA

