### Secord Dam – Gladwin County, Michigan

Four Lakes Task Force and Spicer Group, Inc.

**Wetland Delineation Report** 

Prepared by:



**April 2021** 

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### **ACRONYM LIST**

ESRI Environmental Systems Research Institute

FLTF Four Lakes Task Force

GIS Geographic Information System
GPS Global Positioning System

Merjent Merjent, Inc.

NHD National Hydrography Dataset
NWI National Wetland Inventory
OHWM Ordinary High-Water Mark
PEM Palustrine Emergent
PFO Palustrine Forest

Spicer Group, Inc.
USACE U.S. Army Corps of Engineers

USDA-NRCS U.S. Department of Agriculture-National Resource Conservation Service

USGS U.S. Geological Survey

WETS Climate Analysis for Wetlands Tables

### 1.0 INTRODUCTION

Merjent, Inc. (Merjent) performed a wetland delineation in Gladwin County, Michigan, for Four Lake Task Force (FLTF) and Spicer Group Inc.'s (Spicer) Second Dam project (Project).

In May 2020, Midland and Gladwin Counties experienced an extreme rainfall event that led to the catastrophic failure of the Edenville and Sanford Dams on the Tittabawasee River. This event led to the drawdowns of Secord, Smallwood, Wixom, and Sanford Lakes. Following the dam failures, the FLTF was formed and acquired the Edenville, Sanford, Secord, and Smallwood Dams located along the Tittawabasee River. The FLTF retained Spicer to initiate a Recovery and Feasibility Study and Design Phase to explore options for maintenance at Secord and Smallwood Dams, and restoration at Edenville and Sanford Dams. This will be followed by a Restoration Phase planned to be completed by 2026.

The wetland delineation report will be used to support future maintenance and restoration activities, planning, and identify potential project permits. The associated survey area is depicted in all accompanying figures.

Based on a field investigation conducted by Merjent on March 11, 2021, and review of desktop resources, it is our professional opinion that eight wetlands totaling 1.37 acres (Table 1-1) exist within the 19.54-acre survey area.

TABLE 1-1 Summary of Wetlands							
w01	PEM	7,255	0.17				
w02	PEM	4,014	0.09				
w03	PEM	3,788	0.09				
w04	PEM	4,226	0.10				
w05	PFO	26,472	0.61				
w06	PFO	1,161	0.03				
w07	PFO	7,840	0.18				
w08	PFO	4,916	0.11				
Total 59,672 1.37							

This report outlines the wetland delineation investigation, methodology, and its findings as completed by Merjent. This report has been compiled by the following staff that are trained and experienced in delineation methodologies and applicable regulations:

### • Erin Vander Stelt – Environmental Analyst; Report Author

Erin Vander Stelt is an Environmental Analyst specializing in environmental field surveys and desktop reviews for threatened and endangered species, wetland delineations, and floristic quality inventories in the upper Midwest. She has over a decade of experience and training in plant identification and habitat assessments in the upper Midwest and six years of experience serving oil and gas, private, academic, electric, transportation, and development sectors as well as state and federal agencies.

### Ken Leister – Senior Environmental Analyst; Field Lead

Mr. Leister is a Senior Analyst, Project Manager, and Field Biologist with over 11 years of experience in ecological resource assessments and permitting for clients from various industries. His expertise includes providing project management and permitting services to clients regarding state and federal environmental laws and regulations, including the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, Endangered Species Act, Clean Water Act, National Pollution Discharge Elimination System, and National Environmental Policy Act. In addition to project management and permitting expertise, Mr. Leister is a Certified Wildlife Biologist and has experience conducting field surveys for a range of ecological resources. Past project work has included wetland delineation, general endangered species assessments and species-specific surveys for federally- and state- listed endangered species including bats, birds, reptiles, and plants.

### • Robb Roos - Senior Environmental Analyst; Field Manager

Robb has worked in the fields of wetland ecology and ecological restoration for over ten years. He holds a Master of Science degree in Biology from Grand Valley State University. Robb has led wetland delineation and threatened and endangered species survey field teams for over ten years on projects throughout the Midwest and has also completed, and instructs, State- and USACE-based wetland delineation trainings. He is currently certified as a Wetland Professional by the Society of Wetland Scientists and leads wetland delineations, habitat surveys, report writing, and permitting while managing a variety of projects.

### • Becky Norris - Environmental Analyst; GIS Analyst

Ms. Norris is a GIS Analyst and Field Biologist with over six years of experience in GIS, data analysis, and technical support for several projects throughout the United States. Ms. Norris regularly conducts and performs GIS management for wetland delineations, habitat assessments, and other field surveys. In particular, she specializes in preparing comprehensive environmental impact analysis reports for federal and state permit applications.

### 2.0 METHODS

### 2.1 BACKGROUND INFORMATION

Desktop resources were used to identify potential wetlands on the site. Sources of information that were consulted to identify potential wetlands within the survey area prior to field investigation are listed below:

- USGS Topographical Map (Figure 2)
- USDA-NRCS Web Soil Survey Database for Gladwin County, Michigan (Figure 4)
- NWI (Figure 3)
- NHD (Figure 3)
- ESRI Basemap 2016 Aerial Imagery (Figure 5)
- Google Earth™ Aerial Imagery (multiple years)

### 2.2 INVESTIGATION METHODOLOGY

The delineation of wetlands and other waters of the state were based on the methodology described in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast, as required by current policy. Waterways were identified in accordance with the USACE Jurisdictional Determination Form Instructional Guidebook (USACE-U.S. Environmental Protection Agency, 2007).

Prior to the field work, background information was reviewed to establish the potential location of wetlands and waterways within the survey area. Next, a general reconnaissance of the entire survey area was conducted to evaluate site conditions. On March 11, 2021, the survey area was walked with the specific intent of determining wetland boundaries. Data points were sampled during this time at locations within and near the wetland areas to document soil characteristics, evidence of hydrology, and dominant vegetation. Vegetative community boundaries were identified according to the Cowardin Classification System (Cowardin et al., 1979).

### 2.2.1 Naming Protocol

Features identified in associated figures and appendices are named in the following manner:

- Wetlands (w01, w02, etc.)
- Streams (s01, s02, etc.)
- Data points (dp01, dp02, etc.)
- Photo points (pp01, pp02, etc.)

### 2.2.2 Site Photographs

Photographs (Appendix A) provide a visual representation of wetland communities and boundaries, as well as general site conditions at the time of inspection. Photos are geospatially referenced by their associated photo point location and presented with direction taken (e.g., "pp01 view West," "pp02 view Northeast"). Photo point locations are depicted in the wetland delineation figure (Figure 5).

### 2.2.3 Delineation Data Sheets

The wetland determination data forms (Appendix B) are the written documentation of how representative data points meet or do not meet each of the wetland criteria (USACE, 2011). Plant species nomenclature follows the Regional Wetland Plant List (USACE, 2018). Soils were identified using the methods outlined in Field Indicators of Hydric Soils in the United States, Version 8.2 (USDA-NRCS, 2018).

### 2.2.4 Survey of Wetland Boundary

Merjent surveyed all data point locations and wetland boundaries using GPS technology capable of sub-meter accuracy. While these surveys provide reasonably accurate spatial data, they do not provide the same level of accuracy as a professional land survey. Wetland boundaries were flagged during the field survey where acquisition of more precise survey data by Spicer was required.

### 3.0 RESULTS AND DISCUSSION

### 3.1 DESKTOP REVIEW

### 3.1.1 USGS Topographic Map

The USGS topographic map (Figure 2) shows gently sloping areas on either side of the Tittabawassee River that become steeper as they approach the banks of the river. Steep slopes also exist along the southern and northern edges of the Second Dam berm.

### 3.1.2 Soil Survey

The USDA-NRCS soil map of the survey area (Figure 4) identified five soil types, none of which are hydric (Table 3-1).

TABLE 3-1  Mapped Soil Units							
СТ	Croswell-Au Gres association	No	1.23				
CW	Croswell-Au Gres-Roscommon association	No	0.85				
RUB	Rubicon-Croswell association, undulating	No	11.39				
RWB	Rubicon-Ocqueoc-Ingalls association, undulating	No	1.21				
W	Water	Unranked	4.86				
		Total	19.54				

### 3.1.3 Mapped Wetlands

The NWI map of the survey area (Figure 3) shows approximately 3.04 acres of wetlands (Table 3-2). The lacustrine wetland area is mapped in the historic lakebed above Second Dam. The riverine wetland is mapped in the Tittabawassee River course.

TABLE 3-2						
	Mapped NWI Features					
Symbol Description Acres						
L1UBH	Lacustrine limnetic, unconsolidated bottom, permanently flooded	3.02				
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	0.02				
	Total	3.04				

### 3.1.4 Current, Historic, and High-Resolution Aerial Imagery

Multiple sources of historic aerial imagery were reviewed to evaluate the survey area for wetland signatures. Based on this review, possible wetland signatures were identified throughout the survey area.

### 3.1.5 Recent Climatic Conditions and Precipitation Data

Recent precipitation data were compared with historic precipitation data from a 50-year dataset (1971-2021) from a nearby WETS weather station (Gladwin, MI) to determine if normal hydrologic and climatic conditions were present on-site during the delineation (USDA, accessed March 2021). When compared, the observed precipitation data from three months prior to the delineation indicated normal precipitation conditions at the time of the delineation (Table 3-3).

TABLE 3-3
WETS Analysis

	WETS Attalysis								
	Long-term rainfall records (1971-2021)								
WETS Station GLADWIN, MI	Month	<30%	Mean	>30%	Actual	Condition	Condition Value	Weight	Value X Weight
3rd Prior Month	December	1.47	2.16	2.58	2.54	Normal	2	1	2
2nd Prior Month	January	1.29	1.98	2.38	1.23	Dry	1	2	2
1st Prior Month	February	0.91	1.49	1.81	1.14	Normal	2	3	6
								Sum:	10
If sum is:				Condition V	alues:	Cond	litions On Site:	Normal	

6 to 9 then prior period has been drier than normal (1) Dry
10 to 14 then prior period has been normal (2) Normal
15 to 18 then prior period has been wetter than normal (3) Wet

### 3.2 GENERAL SITE CONDITIONS

Based on the field survey and review of desktop resources, it is our professional opinion that eight wetlands totaling 1.37 acres and two waterways exist within the survey area (Figure 5). Descriptions of the wetlands and waterways are provided below.

Land use on site includes Secord Lake to the north and the Tittabawassee River that runs north to south through the center of the survey area. To the west of the river is an undeveloped forested upland and wetland complex. East of the river is mowed/maintained lawn and gravel driving paths with prior converted wetlands alongside and in between these driving paths. The Secord Dam and spillway runs east-west along the southern edge of Secord Lake.

### 3.2.1 Uplands

Majority of the upland areas with the survey area are forested or mowed/maintained lawn and gravel drives. The forested areas are west of the Tittabawassee River. The tree stratum is dense with red maple (*Acer rubrum*), paper birch (*Betula papyrifera*), northern red oak (*Quercus rubra*), and black cherry (*Prunus serotina*). The shrub layer is sparsely vegetated with saplings of northern red oak, red maple, and black cherry as well as American witch-hazel (*Hamamelis virginiana*) and flowering dogwood (*Cornus florida*). The herb layer is sparsely vegetated with eastern teaberry (*Gaultheria procumbens*), Pennsylvania sedge (*Carex pennsylvanica*), and Northern bracken fern (*Pteridium aquilinum*). Forested areas were topographically diverse with intermixed upland and wetland areas.

East of the Tittabawassee River, along the banks of the river, and along the Secord Dam berm was mowed/maintained lawn. The herb layer of these areas was densely vegetated with Kentucky

blue grass (*Poa pratensis*), smooth brome (*Bromus inermis*), English plantain (*Plantago lanceolata*), and orchard grass (*Dactylis glomerata*).

### 3.2.2 Wetlands

A total of eight wetlands were identified to community type within the survey area (Figure 5) according to Cowardin classification (Appendix C). Summaries of these features are provided below (Table 3-4), and more detailed information for associated data points may be found in wetland determination forms (Appendix B).

TABLE 3-4									
Delineated Wetlands									
Wetland ID Community Type Acreage			Hydrology Indicators	Dominant Vegetation	Hydric Soil Indicators	Associated Data Points			
w01	PEM	0.16	Surface Water (A1), Geomorphic Position (D2), and FAC-Neutral Test (D5)	Pussy willow ( <i>Salix discolor</i> , FACW) and hybrid cattail ( <i>Typha</i> X <i>glauca</i> , OBL)	Sandy Mucky Mineral (S1) and Dark Surface (S7)	dp02			
w02	PEM	0.09	Surface Water (A1), Geomorphic Position (D2), and FAC-Neutral Test (D5)	Hybrid cattail and black bent ( <i>Agrostis</i> gigantea, FACW)	Sandy Mucky Mineral (S1) and Depleted Matrix (F3)	dp04			
w03	PEM	0.09	Surface Water (A1) and FAC-Neutral Test (D5)	Pussy willow, balsam poplar ( <i>Populus</i> balsamifera, FACW), red osier ( <i>Cornus</i> alba, FACW), and lamp rush ( <i>Juncus</i> effusus, OBL)	Soils assumed hydric, but soil pit not dug due to presence of surface water	dp06			
w04	PEM	0.10	Wetland w04 was hydrologically connected to w01 and exhibited similar characteristics. A separate data point was not recorded for w04.	-	-	dp02			
w05	PFO	0.61	High Water Table (A2), Saturation (A3), Stunted or Stressed Plants (D1), Geomorphic Position (D2), and FACNeutral Test (D5)	Red maple ( <i>Acer rubrum</i> , FAC), paper birch ( <i>Betula papyrifera</i> , FACU), speckled alder ( <i>Alnus incana</i> , FACW), and lakebank sedge ( <i>Carex lacustris</i> , OBL)	Stripped Matrix (S6)	dp08			
w06	PFO	0.03	High Water Table (A2), Saturation (A3), Geomorphic Position (D2), and FAC-Neutral Test (D5)	Red maple, speckled alder, green ash (Fraxinus pennsylvanica, FACW), fowl manna grass (Glyceria striata, OBL), and eastern woodland sedge (Carex blanda, FAC)	Stripped Matrix (S6)	dp09			
w07	PFO	0.18	Surface Water (A1), Sparsely Vegetated Concave Surface (B8), Geomorphic Position (D2)	Red maple	Soils assumed hydric, but soil pit not dug due to presence of surface water	dp11			
w08	PFO	0.11	Wetland w08 was hydrologically connected to w07 and exhibited similar characteristics. A separate data point was not recorded for w08.	-	-	-			

### 3.3 WATERWAYS

Merjent determined that two waterways exist within the survey area. The Tittabawassee River flows north to south through the Secord Dam. Stream s01 is a roadside drain which flows from east to west out of w01 and empties through a culvert into the Tittabawassee River. The OHWM of s01 is approximately 1.5 feet, and the depth is approximately three inches. Substrate within s01 is typically composed of sand with some gravel. Representative photographs of waterways are provided in Appendix A.

### 3.4 OTHER WATER RESOURCES IDENTIFIED

Secord Lake is located north of Secord Dam. The Tittabawassee River runs through the Secord Lake basin. The lake basin is reduced from its historic size on both the east and west edges due to a drawdown of the impoundment for maintenance purposes. Approximate current Secord Lake margins are shown in Figure 5.

### 4.0 SUMMARY AND CONCLUSION

On behalf of Spicer and the FLTF, Merjent performed a wetland delineation for the Secord Dam project in Gladwin County, Michigan.

Based on the field survey, it is our professional opinion that eight wetlands totaling 1.37 acres and two waterways exist within the 19.54-acre survey area. This report represents our best professional judgment based on our local knowledge and experience.

### 5.0 DISCLAIMER

The wetlands identified for this report may be subject to regulation by federal, state, and/or local jurisdiction. These authorities may require a professional land survey of the delineated boundaries to verify impacts for regulatory purposes.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of the assessment. They cannot apply to site changes of which Merjent is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to the natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of Merjent.

### 6.0 LITERATURE CITED

- Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 131pp.
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  <a href="https://www.nap.usace.army.mil/Portals/39/docs/regulatory/jd/jd\_guidebook\_051207final.pdf">https://www.nap.usace.army.mil/Portals/39/docs/regulatory/jd/jd\_guidebook\_051207final.pdf</a>
- USDA. Field Office Climate Data. Available online at http://agacis.rcc-acis.org/?fips=26051 accessed March 2021.
- USDA-NRCS. 2018. *Field Indicators of Hydric Soils in the United States*, Version 8.2. Edited by L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- USDA-NRCS. Web Soil Survey. Soil Survey of Gladwin County, MI. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm Accessed March 2021.

## Figure 1 Location Map

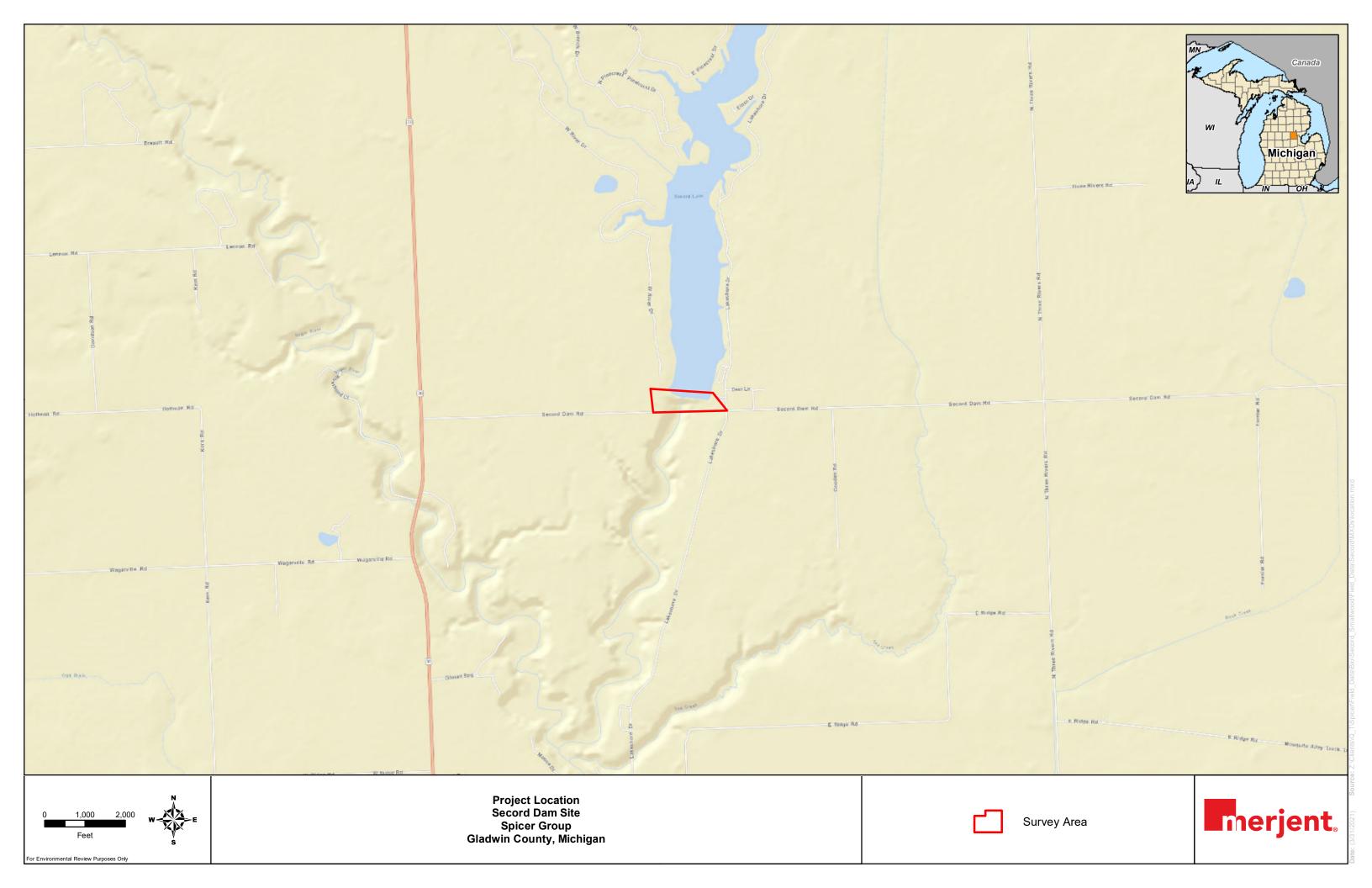


Figure 2
Topography

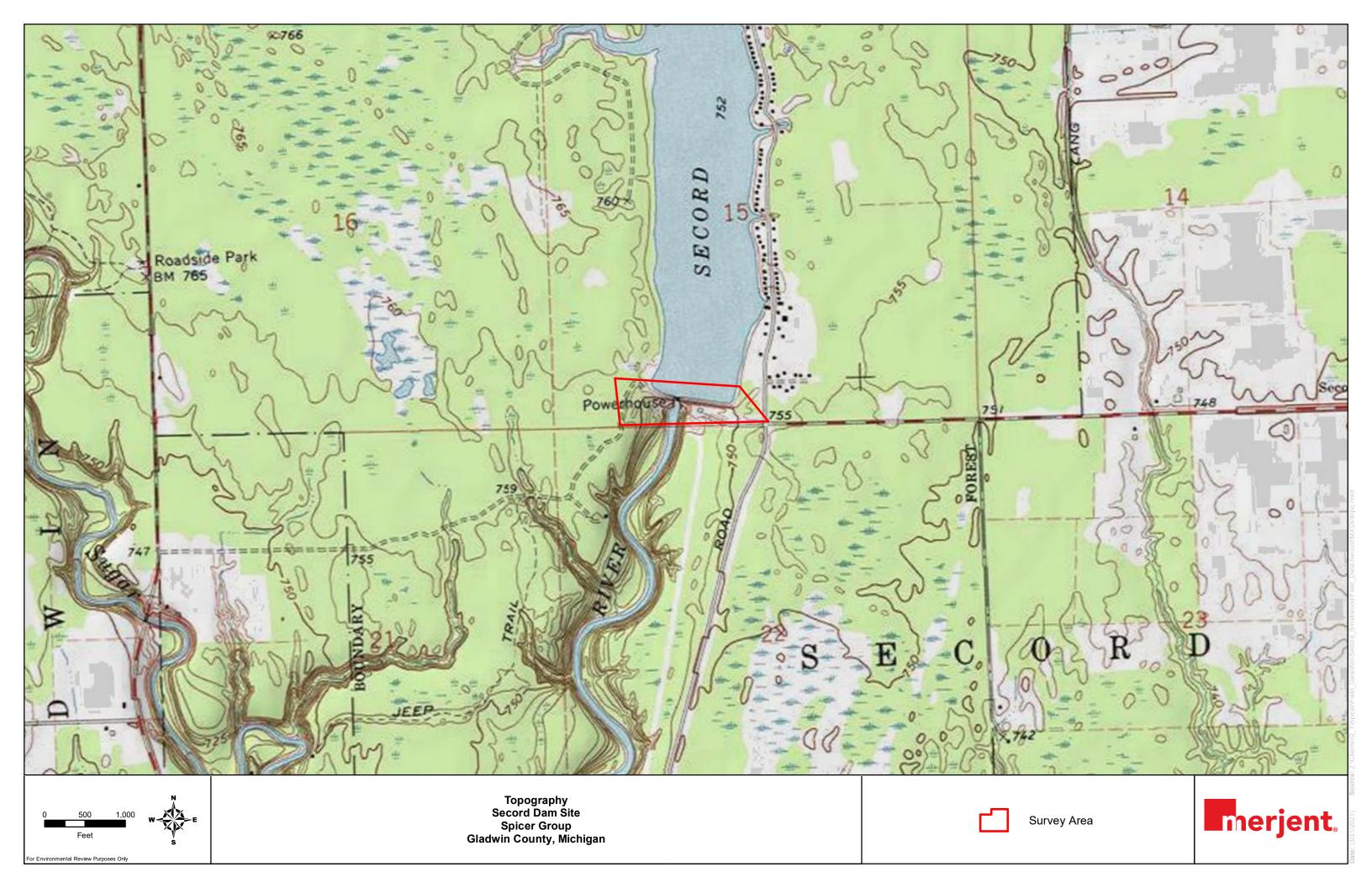


Figure 3
Hydrology







Hydrology Secord Dam Site Spicer Group Gladwin County, Michigan



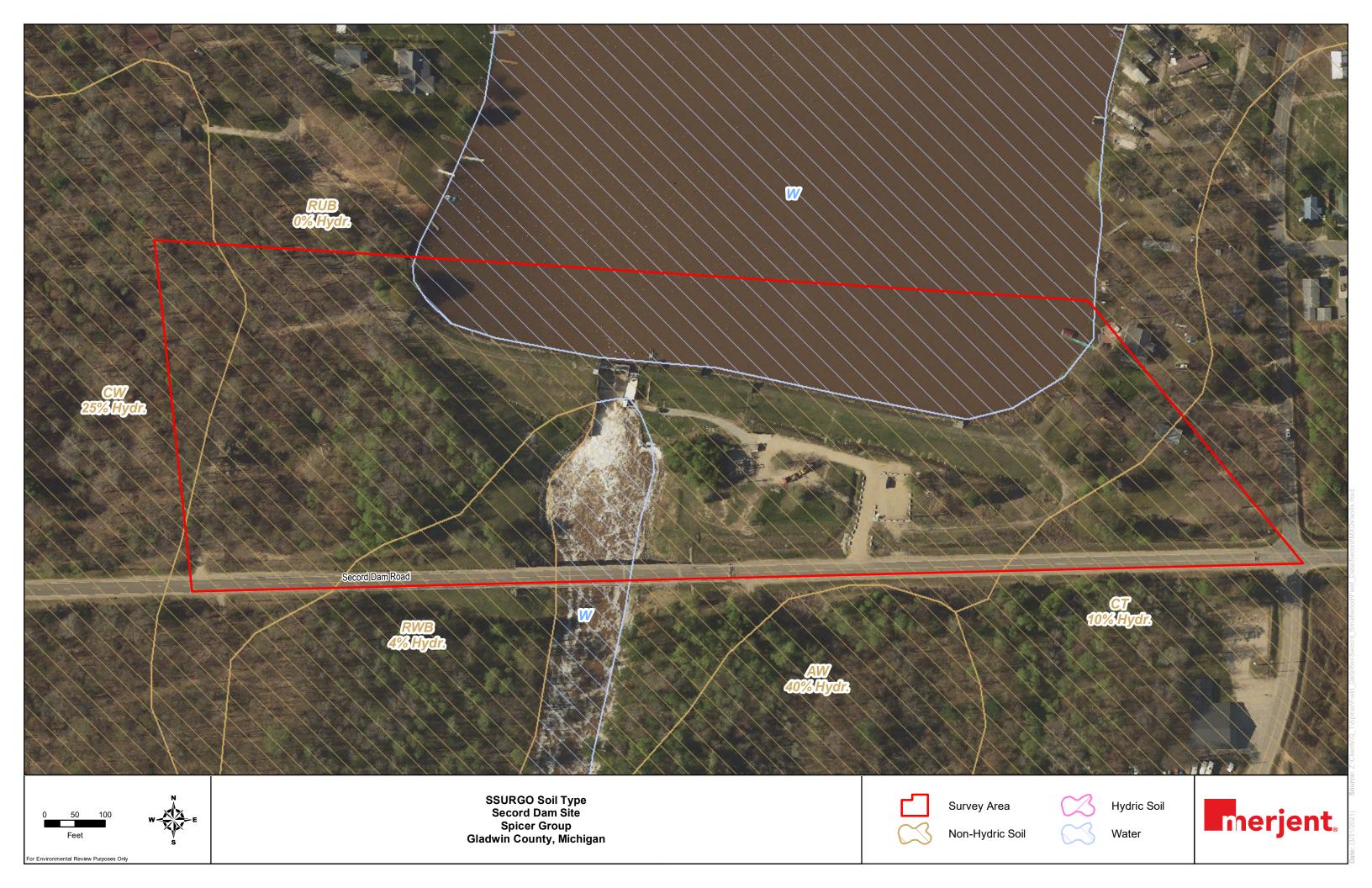
NWI Wetland



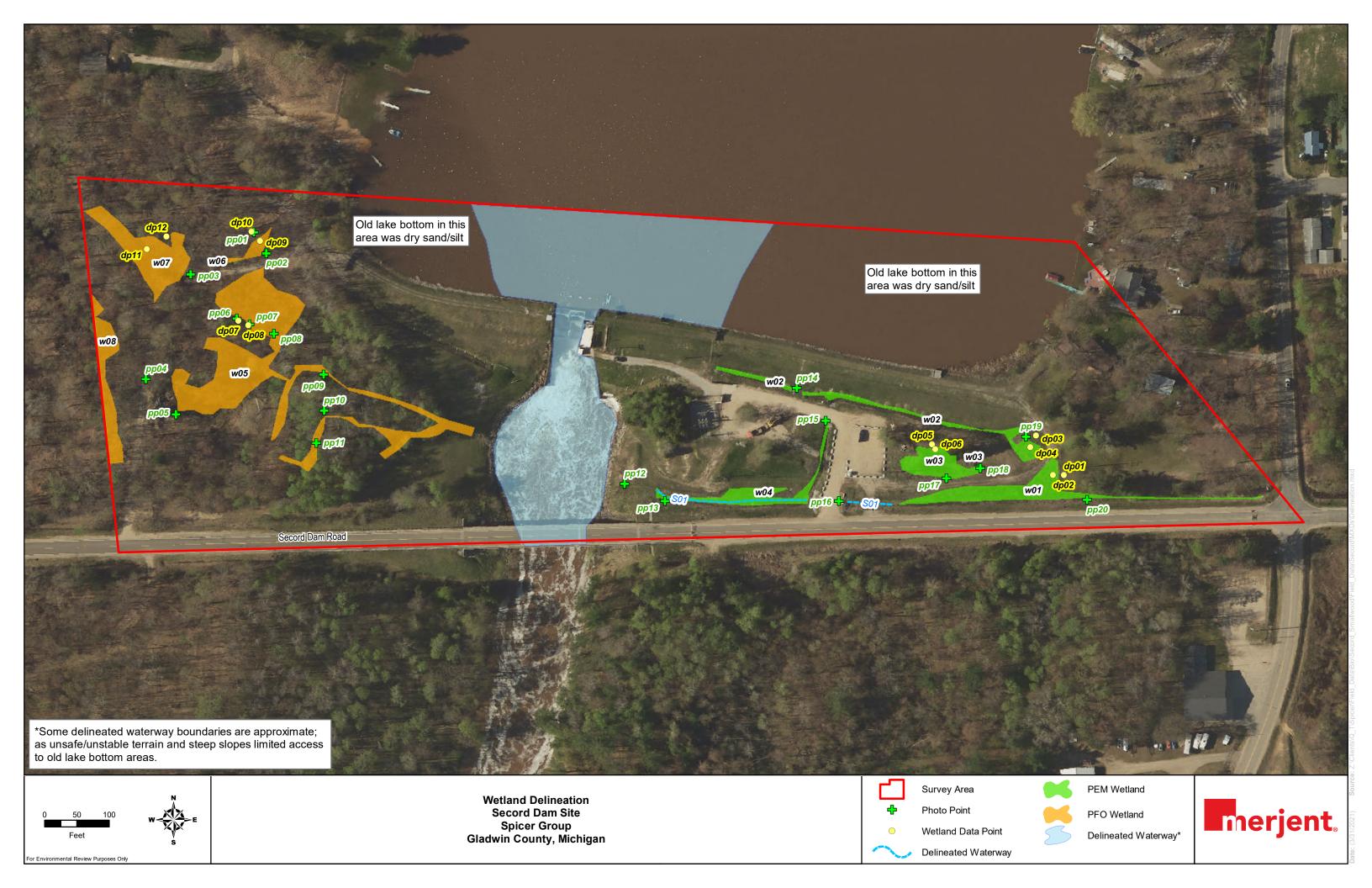
NHD Waterway



# Figure 4 SSURGO Soil Type



### Figure 5 Wetland Delineation



### Appendix A Survey Photographs



Photograph pp01 view North toward dp10



Photograph pp02 view North





Photograph pp02 view West



Photograph pp03 view West





Photograph pp04 view East



Photograph pp04 view North





Photograph pp04 view South



Photograph pp05 view North





Photograph pp06 view South at dp07



Photograph pp07 view West at dp08





Photograph pp08 view East



Photograph pp08 view North





Photograph pp08 view South



Photograph pp08 view West





Photograph pp09 view East



Photograph pp09 view West





Photograph pp10 view East



Photograph pp11 view East





Photograph pp11 view North



Photograph pp11 view South





Photograph pp11 view West



Photograph pp12 view North





Photograph pp12 view South



Photograph pp12 view West





Photograph pp13 view East



Photograph pp13 view Northwest





Photograph pp14 view East



Photograph pp14 view West





Photograph pp15 view South



Photograph pp16 view East





Photograph pp17 view Northeast



Photograph pp17 view Northwest





Photograph pp18 view West



Photograph pp19 view South towards dp04





Photograph pp19 view West



Photograph pp20 view Northeast



# Appendix B Wetland Delineation Data Forms – Northcentral and Northeast Region

Project/Site: Secord Dam	City/County: Gla	dwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force		State: MI	Sampling Point: dp01
Investigator(s): K. Leister	Section,	Township, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Shoulder	Local relief (concave, co	nvex, none): Convex	Slope %: 1-3
Subregion (LRR or MLRA): LRR K, MLRA 94A		ng: -84.339087	Datum: WGS 84
Soil Map Unit Name: Croswell-Au Gres association		NWI classification:	<del></del>
Are climatic / hydrologic conditions on the site typica			explain in Remarks.)
Are Vegetation, Soil, or Hydrology _		lormal Circumstances" prese	
Are Vegetation, Soil, or Hydrology _	naturally problematic? (If nee	eded, explain any answers in	Remarks.)
SUMMARY OF FINDINGS – Attach site r	nap showing sampling point loo	cations, transects, imp	portant features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sample	d Aroa	
Hydric Soil Present? Yes			No X
Wetland Hydrology Present? Yes		Wetland Site ID:	
Remarks: (Explain alternative procedures here or in			
Telescope (Explain alternative procedures field of it	. a departed reports		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicators (n	ninimum of two required)
Primary Indicators (minimum of one is required; che	eck all that apply)	Surface Soil Cracks	s (B6)
Surface Water (A1)	Vater-Stained Leaves (B9)	Drainage Patterns (	(B10)
High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim Lines (B	16)
Saturation (A3)	Marl Deposits (B15)	Dry-Season Water	Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C	C8)
	Oxidized Rhizospheres on Living Roots (C	3) Saturation Visible o	n Aerial Imagery (C9)
	Presence of Reduced Iron (C4)	Stunted or Stressed	, ,
<del></del>	Recent Iron Reduction in Tilled Soils (C6)	Geomorphic Position	
	Thin Muck Surface (C7)	Shallow Aquitard (D	,
	Other (Explain in Remarks)	Microtopographic R	,
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (I	D5)
Field Observations:			
	X Depth (inches):		
Water Table Present? Yes No Saturation Present? Yes No		tland Hydrology Present?	Yes No X
(includes capillary fringe)	Deptil (iliches).	Janu Hydrology Fresent:	163 NO X
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections)	 , if available:	
	, , ,		
Remarks:			

<b>VEGETATION</b> – Use scientific names of	plants.			Sampling Point:dp01
Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. None				Number of Dominant Species
2.				That Are OBL, FACW, or FAC: 0 (A
3				Total Number of Dominant
4.				Species Across All Strata: 1 (B
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 0.0% (A
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of:Multiply by:
Sapling/Shrub Stratum (Plot size: 15'	)			OBL species0 x 1 =0
1. None	<u> </u>			FACW species 0 x 2 = 0
2.				FAC species 0 x 3 = 0
3.				FACU species 99 x 4 = 396
4.				UPL species 0 x 5 = 0
5.				Column Totals: 99 (A) 396
6.				Prevalence Index = B/A = 4.00
7.				Hydrophytic Vegetation Indicators:
		=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5' )				2 - Dominance Test is >50%
1. Poa pratensis	80	Yes	FACU	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Plantago lanceolata	15	No	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide suppor
3. Medicago lupulina	2	No	FACU	data in Remarks or on a separate sheet)
4. Fragaria virginiana	2	No	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5				<sup>1</sup> Indicators of hydric soil and wetland hydrology mus
6.				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.	_			Tree – Woody plants 3 in. (7.6 cm) or more in diam
9.				at breast height (DBH), regardless of height.
10	_			Sapling/shrub – Woody plants less than 3 in. DBH
11		<u> </u>		and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardle
	99	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30'	_)			Woody vines – All woody vines greater than 3.28 fi
1. <u>N/A</u>				height.
2				Hadron by 41c
3.				Hydrophytic Vegetation
4				Present? Yes No X
		=Total Cover		
Remarks: (Include photo numbers here or on a se	eparate sheet.)			

Remarks: (Include photo numbers here or on a separate sheet.) Data point was located within a maintained lawn area.

SOIL Sampling Point: dp01 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Color (moist) % Color (moist) Loc<sup>2</sup> (inches) Type<sup>1</sup> Texture Remarks 0-3 10YR 3/2 100 Sandy 3-8 10YR 4/2 100 Sandy 8-24 10YR 4/3 100 Loamy/Clayey <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (F21) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County: Gladwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force	State: MI	Sampling Point: dp02
Investigator(s): K. Leister	Section, Township, Range: Sec. 1	5, T19N R1E
Landform (hillside, terrace, etc.): Toeslope	Local relief (concave, convex, none): Concave	Slope %: 0-2
Subregion (LRR or MLRA): LRR K, MLRA 94A		Datum: WGS 84
Soil Map Unit Name: Croswell-Au Gres association		n: None
Are climatic / hydrologic conditions on the site typica		, explain in Remarks.)
Are Vegetation, Soil, or Hydrology _	<del></del>	
Are Vegetation, Soil, or Hydrology _		
<del></del>	map showing sampling point locations, transects, ii	,
Hydrophytic Vegetation Present? Yes_	<del></del>	
Hydric Soil Present? Yes_	<del></del>	No
Wetland Hydrology Present? Yes_		
Remarks: (Explain alternative procedures here or i	n a separate report.)	
LIVEROLOGY		
HYDROLOGY		
Wetland Hydrology Indicators:	-	(minimum of two required)
Primary Indicators (minimum of one is required; che		, ,
<del></del>	Vater-Stained Leaves (B9) Drainage Pattern	
	Aquatic Fauna (B13) Moss Trim Lines	
<u> </u>	Marl Deposits (B15) Dry-Season Wate	
<del>-  </del>	Hydrogen Sulfide Odor (C1) Crayfish Burrows	
	· · · · · · · · · · · · · · · · · · ·	e on Aerial Imagery (C9)
<del></del> -	Presence of Reduced Iron (C4) Stunted or Stress	
<del></del>	Recent Iron Reduction in Tilled Soils (C6) X Geomorphic Pos	
Iron Deposits (B5)	Thin Muck Surface (C7) Shallow Aquitard	(D3)
Inundation Visible on Aerial Imagery (B7)0	Other (Explain in Remarks) Microtopographic	Relief (D4)
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Tes	t (D5)
Field Observations:		
Surface Water Present? Yes X No	Depth (inches): 3	
Water Table Present? Yes No _	Depth (inches):	
Saturation Present? Yes No _	Depth (inches): Wetland Hydrology Present	? Yes X No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections), if available:	
Remarks:		

**VEGETATION** – Use scientific names of plants. Sampling Point: dp02 Absolute Dominant Indicator <u>Tree Stratum</u> (Plot size: 30') **Dominance Test worksheet:** % Cover Species? Status 1. None **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 100.0% (A/B 7. Prevalence Index worksheet: =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' **OBL** species 92 x 1 =92 Salix discolor **FACW** species x2 =2. FAC species 0 x 3 = 3. **FACU** species 0 x4 =0 4. **UPL** species 0 0 x 5 = 100 5. Column Totals: (A) 108 (B 1.08 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% 1. Typha X glauca Yes OBL X 3 - Prevalence Index is ≤3.0<sup>1</sup> 10 4 - Morphological Adaptations<sup>1</sup> (Provide supportin Juncus effusus No OBL data in Remarks or on a separate sheet) 2 OBL 3. Alisma subcordatum No 4. Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. 12. Herb - All herbaceous (non-woody) plants, regardles: 92 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: 30' Woody vines - All woody vines greater than 3.28 ft ir height. 2. Hydrophytic 3. Vegetation Present? Yes X No \_ =Total Cover

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

SOIL

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

Depth

Matrix

Redox Features

(inches)

Color (maint)

9/4

Color (maint)

9/4

Type 1 | Log 2

Touture

Remarks

Depth	Matrix	o tile del		x Featur			minim the absence of	,
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-5	10YR 2/1	100					Mucky Sand	
5-12	10YR 3/2	100					Mucky Sand	
12-24	10YR 4/3	98	7.5YR 3/4	2	С	PL	Sandy	Faint redox concentrations
	-							
¹Type: C=Cc	oncentration, D=Deple		-Peduced Matrix M	S-Mack	ed Sand	Grains	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
Hydric Soil I		otion, rtivi	-i teddeed Matrix, M	O-IVIGSI	ca Garia	Oranis.		or Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo	w Surfa	ce (S8) ( <b>L</b>	RR R,		ick (A10) (LRR K, L, MLRA 149B)
Histic Ep	ipedon (A2)		MLRA 149B	)			Coast Pr	rairie Redox (A16) ( <b>LRR K, L, R</b> )
Black His	stic (A3)		Thin Dark Surfa	ace (S9)	(LRR R,	MLRA 1	<b>49B</b> ) 5 cm Mu	icky Peat or Peat (S3) ( <b>LRR K, L, R</b> )
Hydrogei	n Sulfide (A4)		High Chroma S	ands (S	311) ( <b>LRR</b>	R K, L)	Polyvalu	e Below Surface (S8) ( <b>LRR K, L</b> )
Stratified	Layers (A5)		Loamy Mucky I	Mineral	(F1) ( <b>LRF</b>	R K, L)	Thin Dar	k Surface (S9) ( <b>LRR K, L</b> )
Depleted	Below Dark Surface	(A11)	Loamy Gleyed	Matrix (	F2)		Iron-Mar	nganese Masses (F12) ( <b>LRR K, L, R</b> )
Thick Da	rk Surface (A12)		Depleted Matrix	k (F3)	•		Piedmor	nt Floodplain Soils (F19) ( <b>MLRA 149B</b> )
X Sandy M	ucky Mineral (S1)		Redox Dark Su	rface (F	6)		Mesic S	podic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Par	ent Material (F21)
	edox (S5)		Redox Depress		` '			allow Dark Surface (F22)
Stripped	Matrix (S6)		Marl (F10) ( <b>LR</b> l	R K, L)	,		Other (E	xplain in Remarks)
X Dark Sur	face (S7)						<del></del>	
2								
	hydrophytic vegetation	on and w	etland hydrology mu	st be pro	esent, un	less distu	ırbed or problematic.	
	ayer (if observed):							
Type:								
Depth (in	nches):						Hydric Soil Preser	nt? Yes X No

### Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County:	Gladwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force		State: MI	Sampling Point: dp03
Investigator(s): K. Leister	Secti	ion, Township, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Shoulder	Local relief (concave,	, convex, none): Convex	Slope %: 1-3
Subregion (LRR or MLRA): LRR K, MLRA 94A	Lat: 44.0405952	Long: -84.3392458	Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association		NWI classification:	None
Are climatic / hydrologic conditions on the site typical			xplain in Remarks.)
	·	e "Normal Circumstances" prese	
Are Vegetation, Soil, or Hydrology			
Are Vegetation, Soil, or Hydrology _		needed, explain any answers in	·
SUMMARY OF FINDINGS – Attach site	map showing sampling point	locations, transects, imp	portant features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sam	pled Area	
_ · · · · · · · · · · · · · · · · · · ·	No X within a We		No X
Wetland Hydrology Present? Yes	No X If yes, optio	nal Wetland Site ID:	
Remarks: (Explain alternative procedures here or	in a separate report.)		
	, ,		
HYDROLOGY			-
Wetland Hydrology Indicators:		Secondary Indicators (m	ninimum of two required)
Primary Indicators (minimum of one is required; ch	eck all that annly)	Surface Soil Cracks	
•	Water-Stained Leaves (B9)	Drainage Patterns (	, ,
<del></del>	Aquatic Fauna (B13)	Moss Trim Lines (B	•
	Marl Deposits (B15)	Dry-Season Water	
<del></del>	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C	
<del></del>	Oxidized Rhizospheres on Living Roots		n Aerial Imagery (C9)
<del></del>	Presence of Reduced Iron (C4)	Stunted or Stressed	=
<del></del>	Recent Iron Reduction in Tilled Soils (C		* *
<del></del>		Shallow Aquitard (D	` '
	Thin Muck Surface (C7) Other (Explain in Remarks)	Microtopographic R	,
	Other (Explain in Remarks)		,
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (	
Field Observations:			
	X Depth (inches):		
Water Table Present? Yes No			
	X Depth (inches):	Wetland Hydrology Present?	Yes No _X
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitorin	g well, aerial photos, previous inspectio	ns), if available:	
Remarks:			

**VEGETATION** – Use scientific names of plants. Sampling Point: £0ab Absolute Dominant Indicator <u>Tree Stratum</u> (Plot size: 30') **Dominance Test worksheet:** % Cover Species? Status 1. None **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 0.0% (A/B Prevalence Index worksheet: 7. =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' ) **OBL** species 0 x 1 =0 1. **FACW** species 0 0 x2 =2. FAC species 10 x 3 = 3. **FACU** species 42 x 4 = 168 4. **UPL** species 17 85 x 5 = 69 5. Column Totals: (A) 283 (B 4.10 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation =Total Cover Herb Stratum (Plot size: 2 - Dominance Test is >50% 1 Bromus inermis 15 Yes **UPL** 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations<sup>1</sup> (Provide supportin 2. Plantago lanceolata 15 Yes **FACU** data in Remarks or on a separate sheet) 10 Yes 3. Dactylis glomerata **FACU** 4. Barbarea vulgaris 8 No FAC Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 8 5. Fragaria virginiana No **FACU** <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. Medicago lupulina 5 No **FACU** be present, unless disturbed or problematic. 7. Symphyotrichum pilosum No **FACU Definitions of Vegetation Strata:** 8. Setaria pumila No FAC Tree - Woody plants 3 in. (7.6 cm) or more in diamet 2 9. Taraxacum officinale No **FACU** at breast height (DBH), regardless of height. 2 10. Lathyrus latifolius No UPL Sapling/shrub - Woody plants less than 3 in. DBH 11. and greater than or equal to 3.28 ft (1 m) tall. 12. Herb - All herbaceous (non-woody) plants, regardles: 69 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: 30') Woody vines - All woody vines greater than 3.28 ft ir height. 2. Hydrophytic 3. Vegetation Present? Yes No X

=Total Cover

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

SOIL Sampling Point: COab Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Loc<sup>2</sup> Color (moist) % Color (moist) (inches) Type<sup>1</sup> Texture Remarks 0-2 10YR 3/2 100 Loamy/Clayey 2-24 10YR 4/3 100 Loamy/Clayey <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (F21) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx) Soil appears to be engineered fill related to dam.

Project/Site: Secord Dam	City/County: Gladwin		Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force		State: MI	Sampling Point: dp04
Investigator(s): K. Leister	Section, Town	ship, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Depression	Local relief (concave, convex,	none): Concave	Slope %: 0-2
Subregion (LRR or MLRA): LRR K, MLRA 94A		84.3392813	Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association		NWI classification:	None
Are climatic / hydrologic conditions on the site typica			explain in Remarks.)
Are Vegetation, Soil, or Hydrology _			ent? Yes X No
Are Vegetation , Soil , or Hydrology		explain any answers in	
SUMMARY OF FINDINGS – Attach site r			•
The second secon			
Hydrophytic Vegetation Present? Yes_		1	
Hydric Soil Present? Yes _		Yes X	No
Wetland Hydrology Present? Yes _	X No If yes, optional Wetla	nd Site ID:	
Remarks: (Explain alternative procedures here or in	n a separate report.)		
HYDROLOGY			
Wetland Hydrology Indicators:	<u>s</u>		ninimum of two required)
Primary Indicators (minimum of one is required; che		Surface Soil Cracks	, ,
	Vater-Stained Leaves (B9)	Drainage Patterns (	
High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim Lines (B	516)
Saturation (A3)	Marl Deposits (B15)	Dry-Season Water	Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C	C8)
<del></del>	Oxidized Rhizospheres on Living Roots (C3)		n Aerial Imagery (C9)
<del></del> -	Presence of Reduced Iron (C4)	Stunted or Stressed	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	X Geomorphic Position	on (D2)
Iron Deposits (B5)	hin Muck Surface (C7)	Shallow Aquitard (D	03)
Inundation Visible on Aerial Imagery (B7)(	Other (Explain in Remarks)	Microtopographic R	telief (D4)
Sparsely Vegetated Concave Surface (B8)	=	X FAC-Neutral Test (I	D5)
Field Observations:			
Surface Water Present? Yes X No	Depth (inches): 2		
Water Table Present? Yes No	Depth (inches):		
Saturation Present? Yes No	Depth (inches): Wetland	Hydrology Present?	Yes X No
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring	well, aerial photos, previous inspections), if ava	ailable:	
Remarks:			

**VEGETATION** – Use scientific names of plants. Sampling Point: dp04 Absolute Dominant Indicator <u>Tree Stratum</u> (Plot size: 30') **Dominance Test worksheet:** % Cover Species? Status 1. None **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 100.0% (A/B 7. Prevalence Index worksheet: =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' **OBL** species 67 x 1 =67 Cornus alba **FACW FACW** species 24 x2 =2. Salix discolor **FACW** FAC species 10 x 3 = 3. **FACU** species 0 x4 =0 4. **UPL** species 0 0 x 5 = 101 5. Column Totals: (A) 145 (B 1.44 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% 1. Typha X glauca Yes OBL X 3 - Prevalence Index is ≤3.0<sup>1</sup> Agrostis gigantea 4 - Morphological Adaptations<sup>1</sup> (Provide supportin 20 Yes **FACW** data in Remarks or on a separate sheet) Eutrochium purpureum 10 No FAC 3. 4. Juncus effusus 5 No OBL Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) Alisma subcordatum 2 5. No OBL <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. Herb - All herbaceous (non-woody) plants, regardles: 97 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: 30' Woody vines - All woody vines greater than 3.28 ft ir height. 2. Hydrophytic 3. Vegetation Present? Yes X No \_

=Total Cover

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

SOIL Sampling Point: dp04

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

Depth	Matrix		Redo	k Featur	es		nfirm the absence o	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 2/2	100					Mucky Sand	
4-10	10YR 4/2	90	5YR 3/4	10	С	PL	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 5/2	85	7.5YR 4/6	15	C	PL/M	Loamy/Clayey	Prominent redox concentrations
							_	
							_	
-								
<sup>1</sup> Type: C=Cc	oncentration, D=Deple	etion, RM	=Reduced Matrix, M	S=Mask	ed Sand	Grains.	<sup>2</sup> Location: I	PL=Pore Lining, M=Matrix.
Hydric Soil I	Indicators:							for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Belo	w Surfac	ce (S8) ( <b>l</b>	_RR R,	2 cm M	uck (A10) ( <b>LRR K, L, MLRA 149B</b> )
Histic Ep	oipedon (A2)		MLRA 149B	)			Coast F	Prairie Redox (A16) ( <b>LRR K, L, R</b> )
Black His	stic (A3)		Thin Dark Surfa	ace (S9)	(LRR R,	MLRA 1	<b>49B</b> ) 5 cm M	ucky Peat or Peat (S3) ( <b>LRR K, L, R</b> )
Hydroger	n Sulfide (A4)		High Chroma S	ands (S	11) ( <b>LRF</b>	R K, L)	Polyval	ue Below Surface (S8) ( <b>LRR K, L</b> )
Stratified	d Layers (A5)		Loamy Mucky I	Mineral (	(F1) ( <b>LRF</b>	R K, L)	Thin Da	ark Surface (S9) ( <b>LRR K, L</b> )
Depleted	d Below Dark Surface	(A11)	Loamy Gleyed	Matrix (I	F2)		Iron-Ma	inganese Masses (F12) ( <b>LRR K, L, R</b> )
Thick Do	ark Surface (A12)		X Depleted Matrix	(F3)			Piedmo	nt Floodplain Soils (F19) ( <b>MLRA 149B</b> )
HIICK Da				- <b>f</b> /	<b>C</b> \		Mesic S	
	lucky Mineral (S1)		Redox Dark Su	пасе (г	6)			Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
X Sandy M	lucky Mineral (S1) Bleyed Matrix (S4)		Redox Dark Su Depleted Dark	•	,			Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> ) rent Material (F21)
X Sandy M Sandy G	, ,			Surface	(F7)		Red Pa	
X Sandy M Sandy G Sandy R	Gleyed Matrix (S4)		Depleted Dark	Surface sions (F8	(F7)		Red Pa	rent Material (F21)
X Sandy M Sandy G Sandy R Stripped	Sleyed Matrix (S4) Redox (S5)		Depleted Dark Redox Depress	Surface sions (F8	(F7)		Red Pa	rent Material (F21) nallow Dark Surface (F22)
X Sandy M Sandy G Sandy R Stripped Dark Sur	Gleyed Matrix (S4) tedox (S5) Matrix (S6) rface (S7) f hydrophytic vegetati	on and we	Depleted Dark Redox Depress Marl (F10) (LR	Surface sions (F8 <b>R K, L</b> )	(F7) 3)	less distu	Red Pa Very St Other (l	rent Material (F21) nallow Dark Surface (F22)
X Sandy M Sandy G Sandy R Stripped Dark Sur	Gleyed Matrix (S4) dedox (S5) Matrix (S6) rface (S7)	on and we	Depleted Dark Redox Depress Marl (F10) (LR	Surface sions (F8 <b>R K, L</b> )	(F7) 3)	less distu	Red Pa Very St Other (l	rent Material (F21) nallow Dark Surface (F22)
X Sandy M Sandy G Sandy R Stripped Dark Sur	Gleyed Matrix (S4) tedox (S5) Matrix (S6) rface (S7) f hydrophytic vegetati	on and we	Depleted Dark Redox Depress Marl (F10) (LR	Surface sions (F8 <b>R K, L</b> )	(F7) 3)	less distu	Red Pa Very St Other (l	rent Material (F21) nallow Dark Surface (F22)

### Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County: Gladwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force	State: MI	Sampling Point: dp05
Investigator(s): K. Leister	Section, Township, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Flat	Local relief (concave, convex, none): Convex	Slope %: 0-2
Subregion (LRR or MLRA): LRR K, MLRA 94A		Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association		None
Are climatic / hydrologic conditions on the site typica		explain in Remarks.)
Are Vegetation, Soil, or Hydrology _		
Are Vegetation, Soil, or Hydrology _		•
SUMMARY OF FINDINGS – Attach site	map showing sampling point locations, transects, im	portant features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sampled Area	
_ · · · · ·	No X within a Wetland? Yes	No X
Wetland Hydrology Present? Yes		
Remarks: (Explain alternative procedures here or i		
Tromante: (Explain alternative procedures note of the	Ta departe report.	
HYDROLOGY		_
	Consumer and in the store of	
Wetland Hydrology Indicators:	· · · · · · · · · · · · · · · · · · ·	ninimum of two required)
Primary Indicators (minimum of one is required; che		, ,
<del></del>	Water-Stained Leaves (B9) Drainage Patterns (	
<del></del> -	Aquatic Fauna (B13)Moss Trim Lines (B	•
<u> </u>	Marl Deposits (B15)Dry-Season Water	
<del>-  </del>	Hydrogen Sulfide Odor (C1) Crayfish Burrows (C	·
		on Aerial Imagery (C9)
<del></del> -	Presence of Reduced Iron (C4) Stunted or Stressed	, ,
<del></del>	Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position	` '
<u> </u>	Thin Muck Surface (C7) Shallow Aquitard (D	,
	Other (Explain in Remarks)Microtopographic R	,
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (	D5)
Field Observations:		
	X Depth (inches):	
Water Table Present? Yes X No	Depth (inches): 14	
Saturation Present? Yes X No	Depth (inches): 7 Wetland Hydrology Present?	Yes X No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring	g well, aerial photos, previous inspections), if available:	
Damanisa		_
Remarks:		

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

<b>VEGETATION</b> – Use scientific names of pla	ants.			Samplin	g Point:	dp0	)5
<u>Tree Stratum</u> (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet	:		
Betula papyrifera	15	Yes	FACU	Number of Dominant Species	2		
2. Pinus resinosa	8	Yes	FACU	That Are OBL, FACW, or FA		3	(A)
3. Acer rubrum	8	Yes	FAC	Total Number of Dominant			
4. Quercus rubra	5	No	FACU	Species Across All Strata:		7	(B)
5				Percent of Dominant Species	<b>;</b>		
6.				That Are OBL, FACW, or FA	O:	42.9%	(A/B
7				Prevalence Index workshee	t:		
	36	=Total Cover		Total % Cover of:	М	ultiply by:	<u>:                                      </u>
Sapling/Shrub Stratum (Plot size:15')				OBL species 0	x 1 =	0	
1. Pinus strobus	5	Yes	FACU	FACW species 25	x 2 =	50	
2. Populus balsamifera	5	Yes	FACW	FAC species 10	x 3 =	30	
3. Alnus incana	5	Yes	FACW	FACU species 45	x 4 =	180	
4. Quercus rubra	2	No	FACU	UPL species 60	x 5 =	300	
5. Acer rubrum	2	No	FAC	Column Totals: 140	(A)	560	(E
6.	-			Prevalence Index = B	/A =	4.00	
7				Hydrophytic Vegetation Ind	icators:		
	19	=Total Cover		1 - Rapid Test for Hydrop	hytic Ve	getation	
Herb Stratum (Plot size: 5' )				2 - Dominance Test is >5	i0%		
1. Bromus inermis	60	Yes	UPL	3 - Prevalence Index is ≤	3.0 <sup>1</sup>		
2. Onoclea sensibilis	15	No	FACW	4 - Morphological Adapta	•		
3. Pteridium aquilinum	5	No	FACU	data in Remarks or on	a separ	ate sheet	:)
4. Solidago altissima	5	No	FACU	Problematic Hydrophytic	Vegetati	on¹ (Expl	lain)
5				<sup>1</sup> Indicators of hydric soil and	wetland l	hydrology	/ must
6.				be present, unless disturbed			
7				Definitions of Vegetation S	trata:		
8.				Tree – Woody plants 3 in. (7.	.6 cm) or	more in	diamet
9.				at breast height (DBH), regar			
10				Sapling/shrub – Woody plan	nts less t	han 3 in.	DBH
11				and greater than or equal to			
12				Herb – All herbaceous (non-v	a (vboow	lants. red	ardles
	85	=Total Cover		of size, and woody plants les			
Woody Vine Stratum (Plot size: 30')				Woody vines – All woody vir	nes greaf	ter than 3	.28 ft ii
1. None				height.			
2				Hydrophytic			
3.				Hydrophytic Vegetation			
4.				Present? Yes	No	X	
		=Total Cover					

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

SOIL Sampling Point: dp05 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Loc<sup>2</sup> Color (moist) % Color (moist) (inches) Type<sup>1</sup> Texture Remarks 0-24 10YR 2/1 100 Sandy <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (F21) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County: Gladwin Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force	State: MI Sampling Point: dp06
Investigator(s): K. Leister	Section, Township, Range: Sec. 15, T19N R1E
	relief (concave, convex, none): None Slope %: 0
Subregion (LRR or MLRA): LRR K, MLRA 94A Lat: 44.0405509	Long: -84.3398398 Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association, undulating	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes X No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly disturb	
Are Vegetation, Soil, or Hydrologynaturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: w03
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
X Surface Water (A1) Water-Stained Leaves (I	B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) — Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (	
Sediment Deposits (B2)  Oxidized Rhizospheres of the control of th	
Drift Deposits (B3) Presence of Reduced Iro	
Algal Mat or Crust (B4)Recent Iron Reduction in	
Iron Deposits (B5) Thin Muck Surface (C7) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
	A TAO-Neutral Test (BO)
Field Observations:  Surface Water Present? Yes X No Depth (inches):	
Surface Water Present? Yes X No Depth (inches):  Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
	, , ,
Remarks:	

**VEGETATION** – Use scientific names of plants. Sampling Point: 60ab Absolute **Dominant** Indicator 30' Species? **Dominance Test worksheet:** Tree Stratum (Plot size: % Cover Status 2 1. Fraxinus pennsylvanica No **FACW Number of Dominant Species** 2. That Are OBL, FACW, or FAC: (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 100.0% (A/B Prevalence Index worksheet: 7. Total % Cover of: =Total Cover Multiply by: Sapling/Shrub Stratum (Plot size: 15' 47 **OBL** species x 1 = 47 Salix discolor **FACW FACW** species 23 Yes x2 =2. Populus balsamifera Yes **FACW** FAC species 0 x 3 = 2 2 3. Cornus alba Yes **FACW FACU** species x4 =8 4. **UPL** species 0 0 x 5 = 72 5. Column Totals: (A) 101 (B 1.40 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 6 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% 1. Juncus effusus Yes OBL X 3 - Prevalence Index is ≤3.0<sup>1</sup> 4 - Morphological Adaptations<sup>1</sup> (Provide supportin 2. Phalaris arundinacea 10 No **FACW** data in Remarks or on a separate sheet) 5 OBL 3. Typha x glauca No 4. Onoclea sensibilis 5 No **FACW** Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 2 5. Solidago altissima No **FACU** <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. Rhynchospora macrostachya OBL be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. Herb - All herbaceous (non-woody) plants, regardles:

64 =Total Cover

=Total Cover

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

Woody Vine Stratum (Plot size: 30'

2.

3.

of size, and woody plants less than 3.28 ft tall.

Yes X

No \_\_

height.

Hydrophytic

Vegetation Present?

Woody vines - All woody vines greater than 3.28 ft in

SOIL Sampling Point: 60ab Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Color (moist) Color (moist) Loc<sup>2</sup> (inches) Type<sup>1</sup> Texture Remarks <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) X Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and <u>wetland hydrology must be present, unless disturbed or problematic</u> Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx) Soils were assumed to be hydric. Due to the depth of the surface water, a soil pit was not dug.

Project/Site: Secord Dam	City/County	: Gladwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force		State: MI	Sampling Point: dp07
Investigator(s): K. Leister	Se	ction, Township, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Summit		ve, convex, none): Convex	Slope %: 1-3
Subregion (LRR or MLRA): LRR K, MLRA 94A	,	Long: -84.343918	Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association		NWI classification:	
Are climatic / hydrologic conditions on the site typical		<u></u>	explain in Remarks.)
	·		
Are Vegetation, Soil, or Hydrology		Are "Normal Circumstances" prese	
Are Vegetation, Soil, or Hydrology	naturally problematic? (	If needed, explain any answers in	Remarks.)
<b>SUMMARY OF FINDINGS – Attach site</b>	map showing sampling poin	t locations, transects, imp	portant features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sar	mpled Area	
_ · · · · · · · · · · · · · · · · · · ·	No X within a \		No X
Wetland Hydrology Present? Yes		tional Wetland Site ID:	
Remarks: (Explain alternative procedures here or			
Themaine: (Explain alternative procedures here of	in a coparate report.)		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicators (n	ninimum of two required)
Primary Indicators (minimum of one is required; ch	neck all that apply)	Surface Soil Cracks	s (B6)
Surface Water (A1)	Water-Stained Leaves (B9)	Drainage Patterns (	B10)
High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim Lines (B	16)
Saturation (A3)	Marl Deposits (B15)	Dry-Season Water	Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C	28)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roo	ts (C3) Saturation Visible o	n Aerial Imagery (C9)
	Presence of Reduced Iron (C4)	Stunted or Stressed	d Plants (D1)
<del></del>	Recent Iron Reduction in Tilled Soils		
	Thin Muck Surface (C7)	Shallow Aquitard (D	•
	Other (Explain in Remarks)	Microtopographic R	,
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (	D5)
Field Observations:			
	X Depth (inches):		
Water Table Present? Yes No			V N V
	X Depth (inches):	Wetland Hydrology Present?	Yes NoX
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitorin	a well perial photos previous inspect	tions) if available:	
Describe Necorded Data (stream gauge, monitorin	g well, aerial photos, previous inspect	ions), ii avallable.	
Remarks:			_

**VEGETATION** – Use scientific names of plants. Sampling Point: dp07 Absolute Dominant Indicator <u>Tree Stratum</u> (Plot size: 30') Species? **Dominance Test worksheet:** % Cover Status 30 Yes **FACU** 1 Quercus rubra **Number of Dominant Species** 2. Acer rubrum 15 Yes FAC That Are OBL, FACW, or FAC: (A) 3. Prunus serotina 10 No **FACU Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 16.7% (A/B 7. Prevalence Index worksheet: 55 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' **OBL** species x 1 =0 Quercus rubra **FACU FACW** species 0 Yes x2 =2. Prunus serotina Yes **FACU** FAC species 25 x 3 = 75 3. **FACU** species 105 x4 =420 4. **UPL** species 25 125 x 5 = 5. Column Totals: 155 (A) 620 (B 4.00 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** =Total Cover 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% Herb Stratum (Plot size: 1 Pteridium aquilinum Yes **FACU** 3 - Prevalence Index is ≤3.01 25 4 - Morphological Adaptations<sup>1</sup> (Provide supportin Carex pensylvanica Yes UPL data in Remarks or on a separate sheet) 10 Carex blanda No FAC 3. 4. Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. Herb - All herbaceous (non-woody) plants, regardles: 95 =Total Cover of size, and woody plants less than 3.28 ft tall. (Plot size: Woody Vine Stratum 30' Woody vines - All woody vines greater than 3.28 ft in height. 2.

=Total Cover

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

3.

Yes

No X

Hydrophytic

Vegetation Present?

SOIL Sampling Point: dp07 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Color (moist) % Color (moist) Loc<sup>2</sup> (inches) Type<sup>1</sup> Texture Remarks 0-10 10YR 2/2 100 Sandy 10-11 7.5YR 3/4 100 Sandy 5YR 3/4 11-24 10YR 3/1 98 2 С Prominent redox concentrations Sandy <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (F21) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and <u>wetland hydrology must be present, unless disturbed or problematic</u> Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County: Gladwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force	State: MI	Sampling Point: dp08
Investigator(s): K. Leister	Section, Township, Range: Sec. 15	 , T19N R1E
Landform (hillside, terrace, etc.): Depression	Local relief (concave, convex, none): Concave	
Subregion (LRR or MLRA): LRR K, MLRA 94A Lat: 44.0		Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association, undulati		
Are climatic / hydrologic conditions on the site typical for this t	ime of year? Yes X No (If no,	explain in Remarks.)
Are Vegetation, Soil, or Hydrologysign		
Are Vegetation, Soil, or Hydrologynatu	rally problematic? (If needed, explain any answers in	n Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	owing sampling point locations, transects, im	portant features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X No	within a Wetland? Yes X	No
Wetland Hydrology Present? Yes X No	o If yes, optional Wetland Site ID: wub	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (	minimum of two required)
Primary Indicators (minimum of one is required; check all that	t apply) Surface Soil Crack	ss (B6)
<u> </u>	ined Leaves (B9) Drainage Patterns	
<u> </u>	auna (B13) Moss Trim Lines (B	
X Saturation (A3)Marl Depo		
<del></del>	Sulfide Odor (C1) Crayfish Burrows (	•
<del></del>		on Aerial Imagery (C9)
<u> </u>	of Reduced Iron (C4)  X Stunted or Stresse	
<del></del>	on Reduction in Tilled Soils (C6)  X Geomorphic Positi	
	Surface (C7) Shallow Aquitard (I	
<u> </u>	plain in Remarks)Microtopographic F	
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test	(D2)
Field Observations:           Surface Water Present?         Yes         No         X         D           Water Table Present?         Yes         X         No         D           Saturation Present?         Yes         X         No         D           (includes capillary fringe)		Yes <u>X</u> No
Describe Recorded Data (stream gauge, monitoring well, aer	ial photos, previous inspections), if available:	
Remarks:		
Trees were exhibiting buttressing of roots.		
I .		

**VEGETATION** – Use scientific names of plants. Sampling Point: 80ab Absolute **Dominant** Indicator <u>Tree Stratum</u> (Plot size: 30') Species? **Dominance Test worksheet:** % Cover Status 25 Yes FAC 1 Acer rubrum **Number of Dominant Species** 2. Betula papyrifera 20 Yes **FACU** That Are OBL, FACW, or FAC: 3 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 75.0% (A/B Prevalence Index worksheet: 7. Total % Cover of: 45 =Total Cover Multiply by: Sapling/Shrub Stratum (Plot size: 15' **OBL** species 48 x 1 =48 Alnus incana **FACW FACW** species 45 1. Yes x2 =5 2. Prunus serotina **FACU** FAC species 39 x 3 = 117 2 3. Cornus racemosa No FAC **FACU** species 25 x4 =100 4. **UPL** species 0 0 x5 =157 5. Column Totals: (A) 355 (B 2.26 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 52 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% 1. Carex lacustris Yes OBL X 3 - Prevalence Index is ≤3.0<sup>1</sup> 4 - Morphological Adaptations<sup>1</sup> (Provide supportin Carex blanda 10 No FAC data in Remarks or on a separate sheet) 8 OBL 3. Osmunda spectabilis No 4. Equisetum arvense 2 No FAC Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10.

=Total Cover

=Total Cover

60

4. \_\_\_\_\_ \_\_\_ \_\_\_ \_\_\_\_

Hydrophytic Vegetation

height.

Present?

Yes X No \_\_\_

**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, regardles:

Woody vines - All woody vines greater than 3.28 ft in

of size, and woody plants less than 3.28 ft tall.

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

(Plot size: 30'

11.

2.

3.

Woody Vine Stratum

SOIL Sampling Point: 80qb Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Loc2 Color (moist) % Color (moist) (inches) Type<sup>1</sup> Texture Remarks 0-2 10YR 2/2 100 Sandy 2-24 10YR 4/3 90 7.5YR 3/4 10 Μ Sandy Faint redox concentrations <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (F21) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) X Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes Х No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County: Gladwin Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force	State: MI Sampling Point: dp09
Investigator(s): K. Leister	Section, Township, Range: Sec. 15, T19N R1E
Landform (hillside, terrace, etc.): Depression Local	relief (concave, convex, none): Concave Slope %: 1-3
Subregion (LRR or MLRA): LRR K, MLRA 94A Lat: 44.041524	Long: -84.343794 Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association, undulating	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes X No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrologysignificantly distur	
Are Vegetation, Soil, or Hydrologynaturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Lhidranhidia Vandatian Dusaant?	In the Complet Area
Hydrophytic Vegetation Present?  Hydric Soil Present?  Yes X No Yes X No	Is the Sampled Area within a Wetland? Yes X No
Wetland Hydrology Present?  Yes X No	If yes, optional Wetland Site ID: w07
	in yee, optional violatia etc ib.
Remarks: (Explain alternative procedures here or in a separate report.)	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (I	
X High Water Table (A2)  Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (	
Sediment Deposits (B2)  Oxidized Rhizospheres of	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iro	on (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)Recent Iron Reduction in	n Tilled Soils (C6) X Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7)Other (Explain in Remar	Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes X No Depth (inches):	
Saturation Present? Yes X No Depth (inches):	:0 Wetland Hydrology Present? YesX No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
remarks.	

**VEGETATION** – Use scientific names of plants. Sampling Point: **00ab** Absolute Dominant Indicator <u>Tree Stratum</u> (Plot size: 30') **Dominance Test worksheet:** % Cover Species? Status 1. Yes FAC Acer rubrum **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 5 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: 5 (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 100.0% Prevalence Index worksheet: 7. 60 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' **OBL** species 15 x 1 = 15 Alnus incana **FACW FACW** species 27 x 2 = 54 15 Yes 2. Fraxinus pennsylvanica 10 Yes **FACW** FAC species 70 x 3 = 210 3. **FACU** species 0 x4 =0 4. **UPL** species 0 0 x5 =112 5. Column Totals: (A) 279 (B 2.49 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 25 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: X 2 - Dominance Test is >50% 1 Glyceria striata Yes OBL X 3 - Prevalence Index is ≤3.0<sup>1</sup> 4 - Morphological Adaptations<sup>1</sup> (Provide supportin Carex blanda 10 Yes FAC data in Remarks or on a separate sheet) 2 Rubus hispidus No **FACW** 3. 4. Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. Herb - All herbaceous (non-woody) plants, regardles: 27 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: 30' Woody vines - All woody vines greater than 3.28 ft in height. 2. Hydrophytic

=Total Cover

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

3.

Yes X

No \_\_

Vegetation Present?

SOIL Sampling Point: e0ab Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Color (moist) % Color (moist) Loc<sup>2</sup> (inches) Type<sup>1</sup> Texture Remarks 0-2 10YR 2/1 100 Sandy 2-5 10YR 4/2 100 Sandy 7.5YR 4/6 5-24 10YR 4/4 90 10 С PL/M Distinct redox concentrations Sandy <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (F21) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) X Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and <u>wetland hydrology must be present, unless disturbed or problematic</u> Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County:	Gladwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force		State: MI	Sampling Point: dp10
Investigator(s): K. Leister	Sec	tion, Township, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Hillside		e, convex, none): Convex	Slope %: 1-3
Subregion (LRR or MLRA): LRR K, MLRA 94A		Long: -84.343823	Datum: WGS 84
Soil Map Unit Name: Rubicon-Croswell association		NWI classification:	
Are climatic / hydrologic conditions on the site typica			xplain in Remarks.)
	•		
Are Vegetation, Soil, or Hydrology		re "Normal Circumstances" prese	
Are Vegetation, Soil, or Hydrology	naturally problematic? (If	f needed, explain any answers in	Remarks.)
<b>SUMMARY OF FINDINGS – Attach site</b>	map showing sampling point	: locations, transects, imp	portant features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sam	anled Area	
_ · · · · · · · · · · · · · · · · · · ·	No X within a W		No X
Wetland Hydrology Present? Yes		onal Wetland Site ID:	<u></u>
Remarks: (Explain alternative procedures here or			
LEADING ALCOHOLOG PROCESSING OF	a departed reports,		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicators (m	ninimum of two required)
Primary Indicators (minimum of one is required; ch	eck all that apply)	Surface Soil Cracks	s (B6)
Surface Water (A1)	Water-Stained Leaves (B9)	Drainage Patterns (	B10)
High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim Lines (B	16)
Saturation (A3)	Marl Deposits (B15)	Dry-Season Water <sup>-</sup>	Table (C2)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C	28)
	Oxidized Rhizospheres on Living Roots	s (C3) Saturation Visible of	n Aerial Imagery (C9)
<del></del>	Presence of Reduced Iron (C4)	Stunted or Stressed	, ,
<del></del> -	Recent Iron Reduction in Tilled Soils (0		
<del></del>	Thin Muck Surface (C7)	Shallow Aquitard (D	,
	Other (Explain in Remarks)	Microtopographic R	,
Sparsely Vegetated Concave Surface (B8)		FAC-Neutral Test (	D5)
Field Observations:			
	X Depth (inches):		
Water Table Present? Yes No Saturation Present? Yes No	X Depth (inches): X Depth (inches):	Wetland Hydrology Present?	Yes No X
(includes capillary fringe)	Deptif (mories).	wetiand rigurology Fresent:	165 NOX_
Describe Recorded Data (stream gauge, monitorin	g well, aerial photos, previous inspection	ons), if available:	
( 3 3 )		,	
Remarks:			

**VEGETATION** – Use scientific names of plants. Sampling Point: dp10 Absolute **Dominant** Indicator <u>Tree Stratum</u> (Plot size: 30') **Dominance Test worksheet:** % Cover Species? Status 60 Yes **FACU** 1 Quercus rubra **Number of Dominant Species** 2. Acer rubrum 20 Yes FAC That Are OBL, FACW, or FAC: (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 33.3% (A/B 7. Prevalence Index worksheet: 80 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' 0 **OBL** species x 1 =0 Vaccinium angustifolium **FACU FACW** species x 2 = 2. Fraxinus pennsylvanica **FACW** FAC species 20 x 3 = 3. **FACU** species 67 x4 =268 4. **UPL** species 0 0 x 5 = 89 5. Column Totals: (A) 332 (B 3.73 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 2 - Dominance Test is >50% Gaultheria procumbens 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations<sup>1</sup> (Provide supportin 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. 12. Herb - All herbaceous (non-woody) plants, regardles: 5 =Total Cover of size, and woody plants less than 3.28 ft tall. Woody Vine Stratum (Plot size: 30' Woody vines - All woody vines greater than 3.28 ft in height. 2. Hydrophytic 3. Vegetation Present? No X Yes =Total Cover

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

SOIL

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

Depth Matrix Redox Features

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-3	10YR 2/1	100					Sandy	
3-6	10YR 3/2	100					Sandy	
6-8	10YR 3/4	100	_	'			Sandy	
8-24	10YR 5/4	100					Sandy	
0-24	1011\(\)3/4	100					Galiuy	
Type: C=Co	ncentration, D=Depl	etion RM:	=Reduced Matrix M	S=Masl	ed Sand	Grains	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
Hydric Soil I		ouon, run	rtoddodd Watin, W	o maoi	tou ounu	Graino.	Indicators for Problematic Hydric Sc	oils³:
Histosol (			Polyvalue Belo	w Surfa	ce (S8) ( <b>L</b>	LRR R,	2 cm Muck (A10) ( <b>LRR K, L, MLR</b>	
Histic Ep	ipedon (A2)		MLRA 149B	)	, , ,		Coast Prairie Redox (A16) (LRR K	, L, R)
Black His	stic (A3)		Thin Dark Surfa	ace (S9	) (LRR R,	MLRA 14	49B) 5 cm Mucky Peat or Peat (S3) (LR	R K, L, R)
Hydroger	n Sulfide (A4)		High Chroma S	ands (S	611) ( <b>LRF</b>	R K, L)	Polyvalue Below Surface (S8) ( <b>LR</b>	R K, L)
Stratified	Layers (A5)		Loamy Mucky I	Mineral	(F1) ( <b>LRF</b>	R K, L)	Thin Dark Surface (S9) (LRR K, L)	)
Depleted Below Dark Surface (A11) Loan		Loamy Gleyed	Matrix (	F2)		Iron-Manganese Masses (F12) ( <b>LF</b>	RR K, L, R)	
Thick Da	rk Surface (A12)		Depleted Matrix	(F3)			Piedmont Floodplain Soils (F19) (N	/ILRA 149B
	ucky Mineral (S1)		Redox Dark Su	rface (F	6)		Mesic Spodic (TA6) (MLRA 144A,	145, 149B)
Sandy G	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Parent Material (F21)	
	edox (S5)		Redox Depress	,	8)		Very Shallow Dark Surface (F22)	
	Matrix (S6)		Marl (F10) ( <b>LR</b>	R K, L)			Other (Explain in Remarks)	
Dark Sur	face (S7)							
<sup>3</sup> Indicators of	hydrophytic vegetati	ion and we	etland hydrology mu	st he nr	esent un	less distri	rhed or problematic	
	.ayer (if observed):	ion and We	Jana Hydrology Illu	or po bi	oooni, un	iooo diota	issa of problematio.	
Type:								
Depth (in	iches).						Hydric Soil Present? Yes	No X

### Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)

Project/Site: Secord Dam	City/County: Gladwin Sampling Date: 11 Mar 2021			
Applicant/Owner: Four Lakes Task Force	State: MI Sampling Point: dp11			
Investigator(s): K. Leister	Section, Township, Range: Sec. 15, T19N R1E			
Landform (hillside, terrace, etc.): Depression Local	al relief (concave, convex, none): Concave Slope %: 1-3			
Subregion (LRR or MLRA): LRR K, MLRA 94A Lat: 44.041511	Long: -84.344443 Datum: WGS 84			
Soil Map Unit Name: Croswell-Au Gres-Roscommon association	NWI classification: None			
Are climatic / hydrologic conditions on the site typical for this time of year?  Are Vegetation, Soil, or Hydrology significantly distributed in the site typical for this time of year?	<del></del>			
Are Vegetation , Soil , or Hydrology naturally probler	<del></del>			
<del></del>	mpling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area			
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No	within a Wetland? Yes X No			
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: w08			
Remarks: (Explain alternative procedures here or in a separate report.)	<u> </u>			
HYDROLOGY				
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)			
X Surface Water (A1) Water-Stained Leaves	brainage Patterns (B10)			
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)			
Saturation (A3)Marl Deposits (B15)	Dry-Season Water Table (C2)			
Water Marks (B1) Hydrogen Sulfide Odo	r (C1) Crayfish Burrows (C8)			
Sediment Deposits (B2) Oxidized Rhizospheres	s on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)			
Drift Deposits (B3) Presence of Reduced				
Algal Mat or Crust (B4)Recent Iron Reduction				
Iron Deposits (B5) Thin Muck Surface (C				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rem				
X Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)			
Field Observations:				
Surface Water Present? Yes X No Depth (inches				
Water Table Present? Yes No Depth (inches				
Saturation Present? Yes No Depth (inches	s): Wetland Hydrology Present? Yes X No			
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	provious inspections) if evailable:			
Describe Recorded Data (stream gauge, monitoring well, aerial priotos, p	nevious inspections), ii available.			
Remarks:				

**VEGETATION** – Use scientific names of plants. Sampling Point: dp11 Absolute **Dominant** Indicator <u>Tree Stratum</u> (Plot size: 30') **Dominance Test worksheet:** % Cover Species? Status 80 Yes FAC 1 Acer rubrum **Number of Dominant Species** 5 2. Betula papyrifera No **FACU** That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 100.0% Prevalence Index worksheet: 7. 85 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' 0 **OBL** species x 1 =0 Acer rubrum FAC **FACW** species 5 1. Yes x2 =5 2. Alnus incana **FACW** FAC species 110 x 3 = 330 5 3. Amelanchier arborea No **FACU FACU** species 10 x4 =40 4. **UPL** species 0 0 x 5 = 125 5. Column Totals: (A) 380 (B 3.04 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 40 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 5' ) X 2 - Dominance Test is >50% 1. 3 - Prevalence Index is ≤3.01 4 - Morphological Adaptations<sup>1</sup> (Provide supportin 2. data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. Herb - All herbaceous (non-woody) plants, regardles: =Total Cover of size, and woody plants less than 3.28 ft tall. (Plot size: Woody Vine Stratum 30' ) Woody vines - All woody vines greater than 3.28 ft in height. 2. Hydrophytic 3. Vegetation Present? Yes X No \_\_\_

=Total Cover

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

SOIL Sampling Point: dp11 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features Color (moist) Color (moist) Loc<sup>2</sup> (inches) Type<sup>1</sup> Texture Remarks <sup>2</sup>Location: PL=Pore Lining, M=Matrix. <sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Hydric Soil Indicators:** Indicators for Problematic Hydric Soils<sup>3</sup>: 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S8) (LRR R, Histosol (A1) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) High Chroma Sands (S11) (LRR K, L) Hydrogen Sulfide (A4) Polyvalue Below Surface (S8) (LRR K, L) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Red Parent Material (F21) Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22) Stripped Matrix (S6) Marl (F10) (LRR K, L) X Other (Explain in Remarks) Dark Surface (S7) <sup>3</sup>Indicators of hydrophytic vegetation and <u>wetland hydrology must be present, unless disturbed or problematic</u> Restrictive Layer (if observed): Type: Depth (inches): **Hydric Soil Present?** Yes No Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx) Soils were assumed to be hydric. A soil pit was not dug due to the depth of surface water.

Project/Site: Secord Dam	City/County: Gla	adwin	Sampling Date: 11 Mar 2021
Applicant/Owner: Four Lakes Task Force		State: MI	Sampling Point: dp12
Investigator(s): K. Leister	Section	n, Township, Range: Sec. 15,	T19N R1E
Landform (hillside, terrace, etc.): Shoulder	Local relief (concave, co	onvex, none): Convex	Slope %: 1-3
Subregion (LRR or MLRA): LRR K, MLRA 94A	Lat: 44.041557 Lo	ong: -84.344326	Datum: WGS 84
Soil Map Unit Name: Croswell-Au Gres-Roscomm		NWI classification:	None
Are climatic / hydrologic conditions on the site typic			explain in Remarks.)
	_	'Normal Circumstances" prese	
Are Vegetation, Soil, or Hydrology			
Are Vegetation, Soil, or Hydrology	<del></del>	eeded, explain any answers in	
SUMMARY OF FINDINGS – Attach site	map showing sampling point lo	cations, transects, imp	portant features, etc.
Hydrophytic Vegetation Present? Yes	No X Is the Sample	ed Area	_
	No X within a Wetl		No X
Wetland Hydrology Present? Yes	No X If yes, optiona	al Wetland Site ID:	
Remarks: (Explain alternative procedures here or	in a separate report.)		
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicators (n	ninimum of two required)
Primary Indicators (minimum of one is required; ch		Surface Soil Cracks	` '
<del></del>	Water-Stained Leaves (B9)	Drainage Patterns (	•
<del>-                                   </del>	Aquatic Fauna (B13)	Moss Trim Lines (B	·
	Marl Deposits (B15)	Dry-Season Water	
<del></del>	Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C		n Aerial Imagery (C9)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed	, ,
Algal Mat or Crust (B4)  Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C6)  Thin Muck Surface (C7)	Geomorphic Positio Shallow Aquitard (D	
Inundation Visible on Aerial Imagery (B7)	Thin Muck Surface (C7) Other (Explain in Remarks)	Microtopographic R	•
Sparsely Vegetated Concave Surface (B8)	Other (Explain in Nemarks)	FAC-Neutral Test (I	,
Field Observations:	1	TAO-Neutral Test (I	
	Y Donth (inches):		
Surface Water Present? Yes No Water Table Present? Yes No	X Depth (inches): X Depth (inches):		
		etland Hydrology Present?	Yes No X
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitorin	g well, aerial photos, previous inspections	), if available:	
, , , ,		,	
Remarks:			

**VEGETATION** – Use scientific names of plants. Sampling Point: dp12 Absolute Dominant Indicator 30') **Dominance Test worksheet:** <u>Tree Stratum</u> (Plot size: % Cover Species? Status 1. Yes FAC Acer rubrum **Number of Dominant Species** 2. That Are OBL, FACW, or FAC: 2 (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 5. Percent of Dominant Species That Are OBL, FACW, or FAC: 6. 33.3% (A/B 7. Prevalence Index worksheet: 60 =Total Cover Total % Cover of: Multiply by: Sapling/Shrub Stratum (Plot size: 15' **OBL** species x 1 =0 Hamamelis virginiana **FACU FACW** species 0 x 2 = 0 1. Yes 2. Acer rubrum 10 Yes FAC FAC species 70 x 3 = 210 3. Cornus florida 10 Yes **FACU FACU** species 40 x4 =160 4 Prunus serotina 5 No **FACU UPL** species 2 10 x 5 = 112 380 5. Column Totals: (A) (B 3.39 6. Prevalence Index = B/A = **Hydrophytic Vegetation Indicators:** 45 =Total Cover 1 - Rapid Test for Hydrophytic Vegetation Herb Stratum (Plot size: 2 - Dominance Test is >50% Gaultheria procumbens **FACU** 3 - Prevalence Index is ≤3.01 2 4 - Morphological Adaptations<sup>1</sup> (Provide supportin Carex pensylvanica Yes UPL data in Remarks or on a separate sheet) 3. 4. Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 5. <sup>1</sup>Indicators of hydric soil and wetland hydrology must 6. be present, unless disturbed or problematic. 7. **Definitions of Vegetation Strata:** 8. Tree - Woody plants 3 in. (7.6 cm) or more in diamet 9. at breast height (DBH), regardless of height. 10. Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. 12. Herb - All herbaceous (non-woody) plants, regardles: 7 =Total Cover of size, and woody plants less than 3.28 ft tall. (Plot size: Woody Vine Stratum 30' Woody vines - All woody vines greater than 3.28 ft in height. 2. Hydrophytic 3. Vegetation Present? No X Yes

=Total Cover

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

**SOIL** Sampling Point: dp12

Profile Desci	ription: (Describe t Matrix	o the dep		<b>ment th</b> x Featu		tor or co	onfirm the absence of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks
0-1	10YR 2/1	100					Sandy
1-3	10YR 5/2	100			· ——		Sandy
3-6	10YR 3/4	100					Sandy
6-24	7.5YR 4/6	100			. —		Sandy
					·		
							<del></del>
					. —		
<sup>1</sup> Type: C=Co	ncentration, D=Deple	etion, RM:	=Reduced Matrix, M	S=Masl	ked Sand	Grains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil II	ndicators:						Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (	` '		Polyvalue Belo		ce (S8) ( <b>I</b>	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B	<b>'</b>	\	MI DA 4	Coast Prairie Redox (A16) (LRR K, L, R)
Black His			Thin Dark Surfa				
	n Sulfide (A4) Layers (A5)		High Chroma S Loamy Mucky	-			Polyvalue Below Surface (S8) ( <b>LRR K, L</b> ) Thin Dark Surface (S9) ( <b>LRR K, L</b> )
	Below Dark Surface	(Δ11)	Loamy Gleyed			<b>、</b> κ, <b>∟</b> )	Iron-Manganese Masses (F12) (LRR K, L, R)
	rk Surface (A12)	(Д11)	Depleted Matri		(1 2)		Piedmont Floodplain Soils (F19) (MLRA 149B
	ucky Mineral (S1)		Redox Dark Su		<del>-</del> 6)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	leyed Matrix (S4)		Depleted Dark		-		Red Parent Material (F21)
Sandy Re	• ,		Redox Depress		, ,		Very Shallow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LR		0)		Other (Explain in Remarks)
Dark Surf	, ,			, -,			
Bank Gan	1400 (01)						
<sup>3</sup> Indicators of	hydrophytic vegetati	on and we	etland hydrology mu	st be pr	esent, un	less distu	urbed or problematic.
	ayer (if observed):						
Type:							
Depth (in	ches):						Hydric Soil Present? Yes No _X
Remarks:	a la manda a d'Écomo N		and Nambarat D			Manatan	2.0 to include the NRCS Field Indicators of Hydric Soils

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_051293.docx)