

October 8, 2021

Mr. James Durian Chief Executive Officer Marshall Area Economic Development Alliance 323 West Michigan Avenue Marshall, MI 49068

Re: Wetland Delineation Report Marshall Mega Site Project Burns & McDonnell Project No: 134707

Dear Mr. Durian:

Burns & McDonnell Michigan, Inc. (Burns & McDonnell) was retained by the Marshall Area Economic Development Alliance to provide wetland delineation services for the Marshall Mega Site Project (Project). The Project site consists predominantly of agricultural land and undeveloped, forested habitat located between the City of Marshall, which lies to the east, and the unincorporated community of Ceresco, which lies to the west, within Calhoun County, Michigan (Figure 1, Appendix A). The following sections provide information on the proposed Project and summarize the completed wetland delineation.

INTRODUCTION

The Marshall Area Economic Development Alliance is currently evaluating the potential for developing the Project, a commercial or industrial facility and associated infrastructure. The Project site is generally bounded by Michigan Avenue (Michigan Highway 96 [M-96]) on the north, the North Branch Kalamazoo River on the south, Bear Creek on the east, and 12 Mile Road on the west, in Calhoun County, Michigan (Figure 1, Appendix A). Burns & McDonnell understands that areas identified as potential options for the proposed Project would consist of approximately 1,770 acres (Survey Area).

The Project has the potential to impact wetlands and other streams that may be under the jurisdiction of the State of Michigan. U.S. Army Corps of Engineers (USACE) jurisdiction is not anticipated as no waterways within Calhoun County are listed in the December 2018 *Navigable Waters of the United States within the Regulatory Jurisdiction of the U.S. Army Corps of Engineers Detroit District*. As a result, a wetland delineation of the Project was conducted on September 15 and 16, 2021, to evaluate for the presence of wetlands and water bodies, including streams, drainages, and ponds.

METHODS

The following discussions summarize the methods used for the review of existing data and the wetland delineation.



Existing Data Review

Burns & McDonnell reviewed available background information for the Survey Area prior to conducting a site visit. The available background information included:

- 2011 U.S. Geological Survey (USGS) 7.5-minute topographic maps (Ceresco, MI quadrangle),
- USGS National Hydrography Dataset (NHD),
- U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) map,
- Michigan Department of Natural Resources (DNR) Michigan Resource Inventory System (MIRIS) map,
- Federal Emergency Management Agency (FEMA) 2011 National Flood Hazard Layer (NFHL), and
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) 2020 Soil Survey Geographic (SSURGO) digital data for Calhoun County, Michigan.

Maps generated from this available data are included as Figures 2 and 3 in Appendix A.

Wetland and waterbody presence based only on NWI and NHD maps cannot be assumed to be an accurate assessment of potentially occurring jurisdictional wetlands and streams. Wetland and stream identification criteria differ between the USFWS and the USACE. As a result, wetlands and streams shown on an NWI and NHD map may not be under the jurisdiction of the USACE, and all USACE-jurisdictional wetlands and streams are not always included on NWI and NHD maps. Therefore, a field visit was conducted to identify any wetlands or other water bodies that may be present.

Wetland Delineation Field Survey

The wetland delineation of the Survey Area was completed in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0) (Regional Supplement). Sample plots were established at multiple locations, and Wetland Determination Data Forms from the Regional Supplement were completed to characterize the Survey Area (Appendix B). Vegetation, soil conditions, and hydrologic indicators were recorded at each sample plot. Vegetation nomenclature was derived from the 2018 *National Wetland Plant List.* The National Wetland Plant List assigns a wetland indicator status for plant species that are typical in the region. Locations of sample plots and other identified features were surveyed using a real-time sub-meter accurate global positioning system (GPS) unit. Natural color photographs were taken onsite and are included in Appendix C (Photographs C-1 through C-17).



RESULTS

The following sections describe the results of the existing data review and the completed wetland delineation.

Existing Data Review

The following information, pertaining to the Survey Area, was gathered from the review of available data sources:

The existing USGS topographic map was reviewed to familiarize Burns & McDonnell wetland personnel with the topography and potential locations of wetlands and other water bodies (Figure 2, Appendix A). The USGS topographic map indicates the Survey Area crosses a mostly flat area with the majority of the Survey Area draining south towards the Kalamazoo River.

The NWI data indicates two Palustrine Emergent Persistent Seasonally Flooded (PEM1C) wetlands, one Palustrine Emergent Persistent Seasonally Flooded Partially Drained/Ditched (PEM1Cd) wetland, two Palustrine Emergent Persistent Seasonally Flooded Diked/Impounded (PEM1Ch) wetlands, one Palustrine Emergent Persistent Temporary Flooded Partially Drained/Ditched (PEM1Ad) wetland, one Palustrine Emergent Persistent Temporary Flooded Partially Drained/Ditched (PEM1Af) wetland, two Palustrine Emergent Non-Persistent Semi Permanently Flooded (PEM2F) wetlands, two Palustrine Scrub-Shrub Broad-leaved Deciduous Seasonally Flooded (PSS1C) wetlands, one Riverine Lower Perennial Unconsolidated Bottom Permanently Flooded Diked/Impounded (R2UBH) wetlands, and one Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded Diked/Impounded (R2UBHh) wetlands, and one Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded Diked/Impounded (R5UBH) wetlands, and one Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded Diked/Impounded (R5UBH) wetlands, and one Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded Diked/Impounded (R2UBHA).

The MIRIS map indicates four wetlands within the Survey Area (Figure 2, Appendix A).

The NHD data indicates Bear Creek intersecting the eastern and southeastern portions of the Survey Area at two locations (Figure 2, Appendix A).

The 2011 NFHL data indicates that the southern and eastern portions of the Survey Area are located within a FEMA mapped Zone A floodplain associated the Kalamazoo River and Bear Creek, respectively. (Figure 2, Appendix A).

The NRCS SSURGO digital data indicates that portions of 18 soil map units are located within the Survey Area. Two of these soil map units are included on local or national hydric soil lists (Figure 3, Appendix A). Soils identified as hydric within the Survey Area are listed below:

- Adrian muck, 0 to 1 percent slopes (4)
- Histosols and Fluvaquents, frequently flooded (85)



Wetland Delineation Field Survey

On September 15 and 16, 2021, Burns & McDonnell wetland scientists conducted a wetland delineation of the Survey Area. A global positioning system (GPS) unit was used to record the location and extent of features identified within the Survey Area. The land cover and delineated wetlands and other water bodies from the site visits are discussed in detail below.

Vegetation. The Survey Area consisted predominantly of agricultural land interspersed with forested habitat and riparian habitat associated with the Kalamazoo River. Cultivated crops in the agricultural portions of the Survey Area included soybean (*Glycine max*) and corn (*Zea mays*). Typical vegetation in the upland portions of the Survey Area included black cherry (*Prunus serotina*), European buckthorn (*Rhamnus cathartica*), Amur honeysuckle (*Lonicera maackii*), multiflora rose (*Rosa multiflora*), grass species (Poa sp.), brome species (Bromus sp.), fescue species (Festuca sp.), poison ivy (*Toxicodendron radicans*), late goldenrod (*Solidago altissima*), and panicled aster (*Symphyotrichum lanceolatum*)

Soils. Typical upland soils were grayish brown (10YR 5/2), dark grayish brown (10YR 4/2), brown (10YR 4/3), yellowish brown (10YR 5/4), and black (10YR 2/1) in color and ranged in texture from sand to sandy loam to sandy clay loam. Redoximorphic features were typically present in wetland soils and less common in upland soils.

Hydrology. The primary sources of hydrology for the wetlands were overland flow, precipitation, and groundwater. Common indicators of hydrology within the wetlands included Hydrogen Sulfide Odor, Presence of Reduced Iron, Saturation Visible on Aerial Imagery, Geomorphic Position, and FAC-Neutral Test. Hydrology in the area has been significantly altered by agricultural practices.

Delineated Areas

A total of seven wetlands and three streams were identified during the wetland delineation efforts. The wetlands and streams are described by type below, and their locations are shown on Figure 4 in Appendix A. Sample plots were taken in the wetlands and adjacent uplands. Data forms and photographs of these sample plots are included in Appendix B and Appendix C, respectively.

<u>Wetlands</u>

A total of three PEM wetlands, three PEM/PSS wetlands, and one PEMf wetland, encompassing 16.01 acres, were delineated within the Survey Area. Table 1 provides the type, area, and summary of wetland indicators for each wetland delineated within the Survey Area.



PEM/PSS

PEMf

spike rush

N/A

W-6

W-7

Wetland Number	Wetland Type ^a	Dominant Vegetation ^b	Hydric Soil Indicator(s) ^c	Wetland Hydrology Indicator(s) ^d	Area of Wetland Delineated in Survey Area (acre)	Figure 4 Page Number	Regulated by EGLE Under Part 303 (Y/N) ^e	
W-1	PEM	Reed canary grass, purple Joe-Pye weed, American basswood, gray dogwood, prairie cordgrass	F6, F7	C3, C4, C9, D2, D5	2.37	11	Y	
W-2	PEM/PSS	European buckthorn, reed canary grass, kudzu, riverbank grape	F6	C4	4.05	11	Y	
W-3	PEM	Reed canary grass	F6	C1, C4, C9, D2, D5	0.60	11	Y	
W-4	PEM	Reed canary grass, prairie cordgrass, purple loosestrife	F6	A3, C9, D5	1.97	4, 5, 6, 7, 8, 9	Y	
W-5	PEM/PSS	Silky dogwood, black elderberry, reed canary grass, panicled aster, common woodland sedge, riverbank grape	F6, F7	C9, D2, D5	3.84	2	Y	
W		Silky dogwood, sedge sp., common		A1, A2, A3,	2.00	2	V	

Table 1:	Summary	of Wetlands	Delineated
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Potential WOTUS

Under

Rapanos $(Y/N)^{f}$

Y

Υ

Y*

Y

Y

Y

Ν

(a) Symbols for wetland type: PEM = Palustrine Emergent, PSS = Palustrine Scrub-Shrub, PEMf = Farmed Wetland

Total:

(b) Reed canary grass (Phalaris arundinacea), purple Joe-Pye weed (Eutrochium purpureum), American basswood (Tilia americana), gray dogwood (Cornus racemosa), prairie cordgrass (Spartina pectinata), European buckthorn (Rhamnus cathartica), kudzu (Pueraria montana), riverbank grape (Vitis riparia), purple

A4

F6

200 W. Adams \ Chicago, IL, 60606 0 816-333-9400 \ F 816-333-3690 \ burnsmcd.com

C1, C9, D2,

D5

A3, D2

3.00

0.18

16.01

3

1

Y

Ν



loosestrife (*Lythrum salicaria*), black elderberry (*Sambucus nigra*), panicled aster (*Symphyotrichum lanceolatum*), common fox sedge (*Carex vulpinoidea*), sedge sp. (*Carex sp.*), and common spike rush (*Eleocharis palustris*)

(c) Indicator code for hydric soil: F6 = Redox Dark Surface, F7 = Depleted Dark Surface, A4 = Hydrogen Sulfide

(d) Indicator code for wetland hydrology: A1 = Surface Water, A2 = High Water Table, A3 = Saturation, C1 = Hydrogen Sulfide Odor, C3 = Oxidized Rhizospheres on Living Roots, C4 = Presence of Reduced Iron, C9 = Saturation Visible on Aerial Imagery, D2 = Geomorphic Position, D5 = FAC-Neutral Test

(e) Michigan Department of Environment, Great Lakes and Energy (EGLE); Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA)

(f) WOTUS = Waters of the U.S. Jurisdiction is based on professional judgement using the definition of WOTUS under Rapanos v. United States. The USACE makes the final determination of jurisdictional status.

* W-3 is anticipated to require a Significant Nexus determination



Areas Determined to not Meet Wetland Criteria

One area had saturation present on aerial images and geomorphic position but was not determined to be a wetland during the site investigation. This area did not meet other wetland indicators and was not considered a wetland at the time of the site investigation. Table 2 provides a summary of the wetland indicators for sample plot recorded in this area.

Table 2: Sample Plot Not Determined to Meet Wetland Criteria

Sample Plot	Dominant Vegetation ^a	Hydric Soil Indicator(s) ^b	Wetland Hydrology Indicator(s) ^c	Figure 4 Page Number
SP-13	Barnyard grass, soybean	None	C9, D2	2

(a) Barnyard grass (Echinochloa crus-galli), soybean (Glycine max)

(b) Indicator code for hydric soil: None

(c) Indicator code for wetland hydrology: C9 = Saturation Visible on Aerial Imagery, D2 = Geomorphic Position

Sample Plot 13 (SP-13)

SP-13 is located within a farmed area near wetland W-5 and was investigated due to the presence potential farmed wetland signatures on available historical aerial imagery and position in the landscape. No indicators of hydrophytic vegetation were present at the time of the site visit. No indicators of hydric soil were present within the soil profile at the time of the site visit. Saturation Visible on Aerial Imagery (C9) and Geomorphic Position (D2) confirmed wetland hydrology at the time of the site visit. As one of three wetland criteria was met, this area was determined to not meet wetland criteria.

<u>Streams</u>

A total of three streams, extending for a total of 2,693 feet, were identified within the Survey Area.

Intermittent (S-3)

One intermittent stream, totaling approximately 120 feet in length, was delineated within the Survey Area. Intermittent streams typically have a defined bed and bank, discernable ordinary high-water mark (OHWM), and surface water flowing continuously during certain times of the year and more than in direct response to precipitation (e.g., seasonally when the groundwater table is elevated or when snowpack melts). Common riparian vegetation along the stream includes silky dogwood, common spike rush, reed canary grass, winged loosestrife (*Lythrum alatum*), and common boneset (*Eupatorium perfoliatum*). Stream substrate was comprised of silt and algae.

Perennial (S-1, S-2)

A total of two perennial streams (Bear Creek [S-1] and Kalamazoo River [S-2]), totaling approximately 2,573 feet in length, were delineated within the Survey Area. Perennial streams



typically have a defined bed and bank and constant surface water flow throughout the year supplied by groundwater. Common riparian vegetation along these streams includes reed canary grass, European buckthorn, Canada goldenrod (*Solidago canadensis*), riverbank grape (*Vitis riparia*), eastern cottonwood (*Populus deltoides*), sandbar willow (*Salix interior*), and orange jewelweed (*Impatiens capensis*). Stream substrate was comprised of silt, sand, gravel, and rock.

Table 3 provides the type and length of each stream delineated within the Survey Area.



Stream ID ^a	Flow Regime/ Stream Type ^b	Stream Name ^c	Width at OHWM (feet)	OHWM Height (Feet)	Substrate	Length of Stream Delineated in Survey Area (feet)	Figure 6 Page Number	Regulated by EGLE Under Part 301 (Y/N) ^d	Potential WOTUS Under Rapanos (Y/N) ^e
S-1	P/RPW	Bear Creek	10	3	Silt, sand, and gravel	1,764	2, 11	Y	Y
S-2	P/RPW	Kalamazoo River	N/A	N/A	Sand, gravel, and rock	809	3, 4, 5, 6, 7, 8, 9, 10, 11	Y	Y
S-3	I/RPW	UNT to Kalamazoo River	3	1	Silt and algae	120	3	Y	Y
					Total:	2,693			

Table 3: Type and Length of Streams Delineated

(a) Assigned by Burns & McDonnell staff during the site investigation; S = Stream

(b) P = Perennial, I = Intermittent; RPW= Relatively Permanent Waters

(c) Stream name follows USGS topographic map, USGS National Hydrography Dataset (NHD), or state/local data source; UNT = Unnamed Tributary

(d) Michigan Department of Environment, Great Lakes and Energy (EGLE); Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA)

(e) WOTUS = Waters of the U.S. Jurisdiction is based on professional judgement using the definition of WOTUS under Rapanos v. United States. The USACE makes the final determination of jurisdictional status.



SUMMARY

Burns & McDonnell completed a wetland delineation of the Survey Area to identify wetlands and other water bodies. A total of seven wetlands and three stream channels were identified during the delineation efforts.

The Survey Area is entirely within the jurisdiction of the Michigan Department of Environment, Great Lakes and Energy (EGLE) and the USACE Detroit District. Avoidance of wetlands and surface waters should be considered in project planning. If avoidance is not possible, permits for impacts and alterations may be required. In 1984, Michigan received authorization from the federal government to administer Section 404 of the federal Clean Water Act in most areas of the state. Permits for impacts to waterways and wetlands within Calhoun County, Michigan are regulated by EGLE under Part 301 and 303 of the Natural Resources and Environmental Protection Act (NREPA). The USACE, U.S. Environmental Protection Agency (USEPA), and USFWS may review and/or authorize permit applications in certain instances.

If you have any questions or require additional information, please feel free to contact Evan Markowitz at (331) 205-8911 or <u>ejmarkowitz@burnsmcd.com</u>.

Sincerely,

Evan Machnotz

Evan Markowitz Senior Environmental Scientist, PWS

Attachments: Appendix A - Figures Appendix B - Routine Wetland Determination Data Forms, Northcentral and Northeast Region Appendix C - Site Photographs

APPENDIX A - FIGURES

Path: C:\Users\cmking2\OneDrive - Burns & McDonnell\Desktop\Marshall Mega Site\Wetland_Delineation\Figures\MarshallMegaSite_Fig1_Overview.mxd cmking2 9/26/2021 Service Laver Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Source: Esri and Burns & McDonnell Engineering Company

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Source: Esri, National Wetlands Inventory (NWI), National Hydrography Dataset (NHD), Michigan Resource Inventory System (MIRIS), Federal Emergency Management Agency (FEMA), and Burns & McDonnell Engineering Company

Map Unit Symbol & Name

- 12C Coloma loamy sand, 6 to 12% slopes
- 12D Coloma loamy sand, 12 to 18% slopes
- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 16D Oshtemo sandy loam, 12 to 18% slopes 16E - Oshtemo sandy loam, 18 to 35% slopes
- 17B Boyer sandy loam, 0 to 6% slopes
- 17C Boyer sandy loam, 6 to 12% slopes
- 17D Boyer sandy loam, 12 to 18% slopes
- 17E Boyer sandy loam, 18 to 40% slopes
- 25B Kalamazoo loam, 2 to 6% slopes
- 25D Kalamazoo loam, 12 to 18% slopes
- 4 Adrian muck, 0 to 1% slopes*





Map Unit Symbol & Name

- 12C Coloma loamy sand, 6 to 12% slopes
- 12D Coloma loamy sand, 12 to 18% slopes
- 13B Spinks loamy sand, 0 to 6% slopes
- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 17C Boyer sandy loam, 6 to 12% slopes
- 17D Boyer sandy loam, 12 to 18% slopes
- 25A Kalamazoo Ioam, 0 to 2% slopes
- 25B Kalamazoo loam, 2 to 6% slopes
- 4 Adrian muck, 0 to 1% slopes*
- 65 Sebewa loam, 0 to 2% slopes*



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Map Unit Symbol & Name	16C - Oshtemo sandy loam, 6 to 12% slopes	17E - Boyer sandy loam, 18 to 40% slopes	W - Water	
13B - Spinks loamy sand, 0 to 6% slopes	16D - Oshtemo sandy loam, 12 to 18% slopes	23B - Hixton loam, 0 to 6% slopes		
13C - Spinks loamy sand, 6 to 12% slopes	16E - Oshtemo sandy loam, 18 to 35% slopes	25A - Kalamazoo loam, 0 to 2% slopes		
13D - Spinks loamy sand, 12 to 18% slopes	17B - Boyer sandy loam, 0 to 6% slopes	25B - Kalamazoo loam, 2 to 6% slopes		
14B - Bronson sandy loam, 0 to 6% slopes	17C - Boyer sandy loam, 6 to 12% slopes	4 - Adrian muck, 0 to 1% slopes*		
16B - Oshtemo sandy loam, 0 to 6% slopes	17D - Boyer sandy loam, 12 to 18% slopes	64 - Cohoctah loam, gravelly substratum, frequent	ly flooded*	
			l6C 13D B	
🗔 Survey Area				Figure 3
C SSURGO Soils Map Unit (Symbol)	<u><u>u</u><u>1</u><u>8</u></u>			Soile Man
Hydric Rating by Map Unit	8 4		A DUDNIC	Solis Map
SSLIPCO Soile Man Linit (Liveria)			MCDONNELL"	Marshall Mega Site
	0 7	8 9 0 250 500	TEDONNELL	Calbour County MI
SURGU Soils Map Unit (Non-Hydrid		11 12		
Asterisk (*) indicates hydric soil.		Scale in Feet		Page 3 of 12

Map Unit Symbol & Name

- 13B Spinks loamy sand, 0 to 6% slopes
- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 17C Boyer sandy loam, 6 to 12% slopes 17D - Boyer sandy loam, 12 to 18% slopes
- 25A Kalamazoo loam, 0 to 2% slopes
- 25B Kalamazoo loam, 2 to 6% slopes



Map Unit Symbol & Name

- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 25A Kalamazoo loam, 0 to 2% slopes
- 25B Kalamazoo loam, 2 to 6% slopes
- 4 Adrian muck, 0 to 1% slopes*
- 43B Brady sandy loam, 1 to 4% slopes
- 65 Sebewa loam, 0 to 2% slopes*



Map Unit Symbol & Name

- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 16E Oshtemo sandy loam, 18 to 35% slopes
- 17E Boyer sandy loam, 18 to 40% slopes
- 25A Kalamazoo loam, 0 to 2% slopes 25B - Kalamazoo loam, 2 to 6% slopes
- 25C Kalamazoo loam, 6 to 12% slopes
- 29B Hillsdale sandy loam, 0 to 6% slopes
- 29C Hillsdale sandy loam, 6 to 12% slopes
- 64 Cohoctah loam, gravelly substratum, frequently flooded*
- 65 Sebewa loam, 0 to 2% slopes*
- 85 Histosols and Fluvaquents, frequently flooded
- W Water



Map Unit Symbol & Name

- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 23B Hixton loam, 0 to 6% slopes
- 25A Kalamazoo loam, 0 to 2% slopes
- 25B Kalamazoo loam, 2 to 6% slopes
- 85 Histosols and Fluvaquents, frequently flooded
- W Water



Map Unit Symbol & Name

16B - Oshtemo sandy loam, 0 to 6% slopes

16C - Oshtemo sandy loam, 6 to 12% slopes

25A - Kalamazoo loam, 0 to 2% slopes

25B - Kalamazoo loam, 2 to 6% slopes



Map Unit Symbol & Name

- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 16D Oshtemo sandy loam, 12 to 18% slopes
- 17C Boyer sandy loam, 6 to 12% slopes
- 17D Boyer sandy loam, 12 to 18% slopes
- 25A Kalamazoo loam, 0 to 2% slopes
- 25B Kalamazoo loam, 2 to 6% slopes
- 25C Kalamazoo loam, 6 to 12% slopes
- 4 Adrian muck, 0 to 1% slopes*

- 43B Brady sandy loam, 1 to 4% slopes
- 82 Udipsamments and Udorthents, nearly level to steep
- 83 Pits, sand and gravel
- 9 Martisco muck*
- W Water



Map Unit Symbol & Name

- 13C Spinks loamy sand, 6 to 12% slopes
- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 16E Oshtemo sandy loam, 18 to 35% slopes
- 23B Hixton loam, 0 to 6% slopes
- 25A Kalamazoo loam, 0 to 2% slopes 25B - Kalamazoo loam, 2 to 6% slopes
- 25C Kalamazoo loam, 6 to 12% slopes
- 25D Kalamazoo loam, 12 to 18% slopes

29B - Hillsdale sandy loam, 0 to 6% slopes

- 29C Hillsdale sandy loam, 6 to 12% slopes
- 29D Hillsdale sandy loam, 12 to 18% slopes
- 29E Hillsdale sandy loam, 18 to 25% slopes
- 44A Matherton loam, 0 to 3% slopes
- 65 Sebewa loam, 0 to 2% slopes*
- 85 Histosols and Fluvaquents, frequently flooded W Water





Map Unit Symbol & Name

- 16B Oshtemo sandy loam, 0 to 6% slopes
- 16C Oshtemo sandy loam, 6 to 12% slopes
- 16D Oshtemo sandy loam, 12 to 18% slopes
- 16E Oshtemo sandy loam, 18 to 35% slopes
- 17B Boyer sandy loam, 0 to 6% slopes
- 17C Boyer sandy loam, 6 to 12% slopes
 17D Boyer sandy loam, 12 to 18% slopes
 2 Houghton muck, undrained, 0 to 1% slopes*
 25A Kalamazoo loam, 0 to 2% slopes
- 25B Kalamazoo loam, 2 to 6% slopes
 - 25C Kalamazoo loam, 6 to 12% slopes
- 4 Adrian muck, 0 to 1% slopes*
- 43B Brady sandy loam, 1 to 4% slopes
- 82 Udipsamments and Udorthents, nearly level to steep
- 85 Histosols and Fluvaquents, frequently flooded
- 9 Martisco muck*
- W Water
























APPENDIX B - ROUTINE WETLAND DETERMINATION DATA FORMS, NORTHCENTRAL AND NORTHEAST REGION

Ducia at/Citay Manakall Mana C	:4-		City /	Marsł	hall Townshi	р	Complian Datas 0/45/04	
Project/Site: warshall wega 5	<u>ite</u> .			County: Caino				
Applicant/Owner: Marshall Are	ea Economic	Development AI	liance		State:	MI	Sampling Point: <u>SP-1</u>	
Investigator(s): Burns & McDe	onnell (EJM &	έ AO)		Section, Tow	nship, Rang	e: <u>S34 T2</u>	2S R6W	
Landform (hillslope, terrace, etc.) Flat in de	epression	Local re	elief (concave, co	onvex, none): None	Slope (%): 0	
Subregion (LRR or MLRA): L		Lat:42.26	0695	Long:	-84.99835	4	Datum: NAD83	
Soil Map Unit Name:	Adrian muck,	0 to 1 percent sl	opes			NWI Classif	ication: PSS1C	
Are climate/hydrologic condition	s on the site t	typical for this tin	ne of year?	🛛 Yes 🛛	No (If n	no, explain ii	n Remarks)	
Veg	etation S	ioil Hydrolog	Ŋ					
Significantly Disturbed?				Are "Normal Cir	rcumstances	s" present?	Xes 🗋 No	
Naturally Problematic?				(If needea	l, explain any a	answers in Ke	emarks)	
SUMMARY OF FINDINGS – /	Attach site	map showing	sampling	point locatior	ns, transec	cts, impor	tant features, etc.	
		Yes No	Remarks	: Wetland 1 (W-	1) is a Palus	trine Emerg	ent (PEM) wetland.	
Hydrophytic Vegetation Present	?							
Hydric Soil Present?								
Wetland Hydrology Present?								
Is the Sampled Area within a V	Vetland?							
IYDROLOGY								
Wetland Hydrology Indicators	:				S	Secondary Ir	ndicators (minimum of two required)	
Primary Indicators (minimum of	o <u>ne required;</u>	<u>check all that a</u>	o <u>ply)</u>		Г	T Surface S	oil Cracks (B6)	
Surface Water (A1)		 ☐ Water-St	ained Leaves	s (B9)	 Г	Drainage	Patterns (B10)	
☐ High Water Table (A2)		— ∏ Aquatic F	auna (B13)	()	Г	T Moss Trin	Lines (B16)	
\square Saturation (A3)		☐ . □ Marl Dep	osits (B15)		г] Drv-Seaso	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	
□ Water Marks (B1)			n Sulfide Odc	or (C1)] Cravfish F	$\frac{1}{2}$	
\square Sediment Deposits (B2)			Rhizosphere	es on Living Roo	ts (C3) □	\boxtimes Saturation Visible on Aerial Imagery (C9)		
\square Drift Deposits (B3)			of Reduced	Iron (C4)		Stunted or Stressed Plants (D1)		
□ Dim Deposits (Do)			on Reduction	n in Tilled Soils (∟ (^6) [∑	\Box Stunied of Stressed Plants (D1)		
\square Iron Denosite (R5)			V Surface (C	71		Geomorphic Position (D2)		
	magany (B7)			arka)		Shallow Aquitard (D3)		
	Nayery (D7)			lains)				
		/				AC-Neul	rai rest (D5)	
Field Observations:	Yes No	O (inches):	Descri inspec	be Recorded Da tions. etc.). if av	ata (stream <u>c</u> ailable:	gauge, moni	toring well, aerial photos, previous	
Surface Water Present?		3						
Water Table Present?		3	-					
Saturation Present?		3						
(includes capillary fringe)		_						
Wetland Hydrology Present?]						
Remarks: Saturation Visible on	Aerial Imager	ry (C9), Geomor	phic Position	(D2), and FAC-	Neutral Test	t (D5) confir	med wetland hydrology.	

VEGETATION – Use scientific names of plants not found.

T O ()		Absolute	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u>	(Plot size: <u>30 ft. x 30 ft.</u>)	<u>% Cover</u>	Species?	Status	Number of Dominant Species that are OBL, FACW, or FAC:	2 (A)
1 2		<u> </u>	·		Total Number of Dominant	()
3		%			Species Across All Strata:	<u> 2 (</u> B)
4.		<u>%</u>			Percent of Dominant Species	
5.		%			that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6.		%			Brovalonco Indox workshoot:	
7		%				
		0 %	= Total Cover	r	lotal % Cover of:	Multiply by:
Sonling/Shrub Stratum	(Diotoizo: 15 ft x 15 ft)				OBL species%	x 1 = <u>0</u>
Saping/Shrub Stratum	(Piol Size. <u>15 il. x 15 il.</u>)				FACW species%	x 2 =
1		%	·		FAC species%	x 3 =
2		%			FACU species %	x 4 = 0
۵ ۵		%			UPL species %	$x_{5} = 0$
5.		<u> </u>			Column Totals: 0%	(A) 0 (B)
6.		%				(A) <u> </u>
7.		%			Prevalence Index = B/A =	
		0 %	= Total Cove	r	Hydrophytic Vegetation Indic	ators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				☐ 1 - Rapid Test for Hydrophy	tic Vegetation
1. Phalaris arundinacea		55 %	Y	FACW	☑ 2 - Dominance Test is >50%	, 0
2. Eutrochium purpureun	า	20 %	Y	FAC	☐ 3 - Prevalence Index is ≤3.0)1
3. Impatiens capensis		15 %	<u>N</u>	FACW	□ 4 - Mornhological Adaptatio	ne ¹ (Provide
4. <i>Ipomoea purpurea</i>		10 %	<u> </u>	FACU	supporting data in Remarks	or on a separate
5. <u>Solidago gigantea</u>		<u> </u>	<u> </u>	FACW	sheet)	
6. <u>Sympnyotricnum nova</u>	e-angliae	<u> </u>	<u> </u>		Problematic Hydrophytic Ve	getation ¹ (Explain)
8.		<u> </u>		FACO	¹ Indicators of hydric soil and wetlan present, unless disturbed or problen	id hydrology must be natic
9		%				
10		%			Definitions of Vegetation Stra	ita:
11		%			Tree – Woody plants 3 in. (7.6 cm	n) or more in
12		%			diameter at breast height (DBH),	regardless of height.
		112 % =	= Total Cove	r	Sapling/Shrub – Woody plants le	ess than 3 in. DBH
Woody Vine Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)				and greater than 5.26 it (1 m) tail.	
1		<u>%</u>			Herb – All herbaceous (non-wood of size, and woody plants less that	dy) plants, regardless an 3.28 ft tall.
2		%			Woody vine All woody vines an	contar than 2 20 ft in
з Д		<u> </u>	·		height.	
די		/0	- Total Cava			
		0 70 -		I	Hydrophytic Vegetation Present	t? 🖾 Yes 🔲 No

Remarks (include photo numbers here or on a separate sheet): The Dominance Test confirmed hydrophytic vegetation at the time of the site visit.

Error! Reference Sampling Point: <u>source not found.</u>

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix		F	Redox Fea	atures		_			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-2	10YR 2/1	100					Muck			
2-6	10YR 2/1	100					Silty Clay Loam			
6-18	10YR 2/1	90	10YR 4/1	10	D	М	Silty Clay Loam			
18-20	10YR 2/1	98	10YR 4/1	2	D	М	Silty Clay Loam	Pebbles		
					. <u> </u>					
					·					
					·					
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ² Location: PL=Pore Lining, M=Matrix										
Hydric Soil I	ndicators:						Indicators for Problematic Hy	dric Soils ³ :		
Histosol (A1) Dark Surface (S7) (LRR R, MLRA 149B)							2 cm Muck (A10) (LRR K, L,	MLRA 149B)		
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148)							🗌 Coast Prairie Redox (A16) (I	_RR K, L, R)		
□ Black Histic (A3) □ Thin Dark Surface (S9) (LRR R, MLRA 149B)							☐ 5 cm Mucky Peat or Peat (S	3) (LRR K, L, R)		
Hydrogen	Hydrogen Sulfide (A4)						Dark Surface (S7) (LRR K, L)			
Stratified I	Stratified Layers (A5)						Polyvalue Below Surface (S8	3) (LRR, K, L)		
Depleted Below Dark Surface (A11)						Thin Dark Surface (S9) (LRF	R, K, L)			
Thick Darl	Thick Dark Surface (A12)						☐ Iron-Manganese Masses (F1	2) (LRR, K, L)		
Sandy Mu	cky Mineral (S1)		Depleted Dark S	urface (Fi	7)	Piedmont Floodplain Soils (F	19) (MLRA 149B)			
□ Sandy Gle	eved Matrix (S4)		Redox Depression	ons (F8)	,		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
□ □ Sandv Re	dox (S5)			()			Red Parent Material (F21)			
☐ Stripped N	Aatrix (S6)						Very Shallow Dark Surface (TF12)			
							☐ Other (Explain in Remarks)			
³ Indicators of	hydrophytic vegetat	ion and v	vetland hydrology mu	st he nree	sent unless (histurbed o	r problematic			
Restrictive L	aver (if observed):						Hydric Soil Present?			
Type:			Depth (inches):							
		(53)	<u> </u>							
Remarks: D	epleted Dark Surface	e (F7) cc	onfirmed hydric soils.							

Draiast/Sites Maraball Maga Si	10		City/County/	Marshall Township	C	Sampling Data: 0/15/21		
Project/Site: Marshall Mega Si			City/County:			Sampling Date: 9/15/21		
Applicant/Owner: Marshall Are	a Economic De	evelopment Allia	ance	State:	MI	Sampling Point: <u>SP-2</u>		
Investigator(s): <u>Burns & McDo</u>	onnell (EJM & A	0)	Secti	on, Township, Range	e: <u>S34 T2</u>	2S R6W		
Landform (hillslope, terrace, etc.)) Flat		Local relief (cor	cave, convex, none)	: None	Slope (%):0		
Subregion (LRR or MLRA): L		Lat: 42.2608	308	Long: -84.998395	5	Datum: NAD83		
Soil Map Unit Name: A	drian muck, 0 t	o 1 percent slo	pes	1	WI Classif	ication: <u>N/A</u>		
Are climate/hydrologic conditions	s on the site typ	ical for this time	e of year? 🛛 🛛 Y	es 🗌 No (If n	o, explain ii	n Remarks)		
Veg	etation Soil	Hydrology						
Significantly Disturbed?			Are "No	rmal Circumstances	" present?	🛛 Yes 📋 No		
Naturally Problematic?			(1	f needed, explain any a	nswers in Re	emarks)		
SUMMARY OF FINDINGS - A	Attach site ma	ap showing s	ampling point le	ocations, transec	ts, impor	tant features, etc.		
	Ye	es No	Remarks: Sample	Plot (SP)-2 is locate	ed adjacent	t to Wetland (W)-1.		
Hydrophytic Vegetation Present?	<u>,</u> E							
Hydric Soil Present?	Γ							
Wetland Hydrology Present?	Ľ							
Is the Sampled Area within a V	Vetland?							
INTERNATION INTERNATIONAL INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALI INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALIZIA INTERNATIONALI INTERNATIONALIZIALIZIA INTERNATIONALIZIA INTERNATI INTERNATI INTERNATI INTERNATI INTERNATIONALIZIA I								
Wetland Hydrology Indicators:				S	econdary Ir	ndicators (minimum of two required)		
Primary Indicators (minimum of c	one required: ch	neck all that app	olv)		l Surfaco S	oil Crocks (B6)		
\square Surface Water (A1)	<u></u>	₩ater-Stai	ned Leaves (B9)			Dettorne (B10)		
High Water Table (A2)					Drainage	Patterns (B10)		
$\Box \text{ Fight Water Table (A2)}$					\square Moss Thin Lines (BT6) \square Dry Season Water Table (C2)			
Saturation (A3)			SILS (B15)		Dry-Season Water Table (C2)			
Vvater Marks (B1)			Sulfide Odor (C1)		Crayfish Burrows (C8)			
Sediment Deposits (B2)			hizospheres on Liv	ing Roots (C3)	Saturation Visible on Aerial Imagery (C9)			
Drift Deposits (B3)			of Reduced Iron (C4	+)	Stunted or Stressed Plants (D1)			
Algal Mat or Crust (B4)		Recent Iro	n Reduction in Tille	d Soils (C6)	Geomorphic Position (D2)			
Iron Deposits (B5)		Thin Muck	Surface (C7)		☐ Shallow Aquitard (D3)			
Inundation Visible on Aerial Ir	nagery (B7)	Other (Exp	lain in Remarks)		Microtopographic Relief (D4)			
Sparsely Vegetated Concave	Surface (B8)				FAC-Neut	ral Test (D5)		
Field Observations:	Yes No	Depth	Describe Reco	rded Data (stream g	auge, moni	itoring well, aerial photos, previous		
Surface Water Present?		<u>(inches).</u>	inspections, et	c.), if available:				
Water Table Present?								
Seturation Present?								
(includes capillary fringe)								
Wetland Hydrology Present?								
Remarks: No indicators of wetla	nd hydrology w	ere present at t	he time of the site v	risit.				

Sampling Point: SP-2

Tree Stratum	(Plot size: 30 ft x 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 Sassafras	albidum	30 %	v	EACU	that are OBL, FACW, or FAC:	2 (A)
2 Prunus ser	rotina	2 %	 N	FACU	Total Number of Dominant	
3.		<u> </u>			Species Across All Strata:	<u> </u>
4.		%			Percent of Dominant Species	
5.		%			that are OBL, FACW, or FAC:	<u>40%</u> (A/B)
6		%			Prevalence Index worksheet	
7		%				
		32 %	= Total Cover		Iotal % Cover of:	Multiply by:
Sopling/Shrub S	(Plot size: 15 ft x 15 ft)				OBL species%	x 1 = <u>0</u>
Saping/Shrub S	(Flot size. <u>15 it. x 15 it.</u>)				FACW species %	x 2 = <u>0</u>
1. <u>Lonicera m</u>	naackii	30 %	<u> </u>	UPL	FAC species %	x 3 = 0
2. <u>Rhamnus c</u>	cathartica	20 %	<u> </u>	FAC	FACU species %	x 4 = 0
3		%				x 5 = 0
4						$x_{3} = \underline{0}$
56		%			Column Totals: 0%	(A) <u>0</u> (B)
7.		<u>%</u>			Prevalence Index = B/A =	
		50 %	= Total Cover		Hydrophytic Vegetation Indi	cators:
Herb Stratum	(Plot size: 5 ft x 5 ft)				□ 1 Banid Tast for Hydroph	vtia Vagatatian
		E 0/	V			
1. <u>Rnamnus (</u>	cathantica	<u> </u>	<u> </u>	FAC	☐ 2 - Dominance Test is >50	%
2. <u>Toxicodenia</u> 3. <u>Posa multi</u>	flora	2 %	<u> </u>		☐ 3 - Prevalence Index is ≤3.	0 ¹
3. <u>Rosa mulu</u> 4		%		TACO	🔲 4 - Morphological Adaptati	ons ¹ (Provide
5		<u>%</u>	·		supporting data in Remark sheet)	s or on a separate
6.		%				egetation ¹ (Explain)
7.		%				
8.		%			Indicators of hydric soil and wetla present, unless disturbed or proble	nd hydrology must be matic
9		%				
10		%			Definitions of Vegetation Str	ata:
11		%			Tree – Woody plants 3 in. (7.6 c	m) or more in
12		%			diameter at breast height (DBH)	, regardless of height.
Maadu Vina Str	(Dist size: 20 ft v 20 ft)	9 % =	= Total Cover		Sapling/Shrub – Woody plants and greater than 3.28 ft (1 m) ta	less than 3 in. DBH I.
woody vine Str	(Plot size. <u>30 lt. x 30 lt.</u>)					
1. <u>Vitis aestiv</u>	alis	10 %	<u> </u>	FACU	of size, and woody plants less th	ian 3.28 ft tall.
2.		%			Woody vine Allowedy discourses	reator than 2.00 # :
3		<u> </u>			height.	jreater than 3.28 Tt IN
7		10.0/	- Total Carre			
		10 %	- Total Cover		Hydrophytic Vegetation Prese	nt? 🗌 Yes 🖾 No

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.

Profile Desc	ription: (<i>Describe to</i> Matrix	the dep	oth needed to docu	ment the l	indicator or	confirm tl	he absence of indicators.)			
Depth (inchos)		0/	Color (moint)	0/		1.002	- Toyturo	Pomorko		
		100		70	Туре	LOC-	Sand	Remarks		
	1011(3/2	100								
<u> </u>					·					
<u> </u>										
¹ Type: C=Co	ncentration, D=Deple	tion, RN	I=Reduced Matrix, N	IS=Maske	d Sand Grain	S	² Location: PL=Pore Lini	ng, M=Matrix		
Hydric Soil I	ndicators:						Indicators for Problematic Hy	dric Soils ³ :		
Histosol (A	A1)		Dark Surface (S	7) (LRR R	, MLRA 149E	B)	2 cm Muck (A10) (LRR K, L	, MLRA 149B)		
🗌 Histic Epip	pedon (A2)		Polyvalue Below	Surface (S8) (MLRA 1	47, 148)	Coast Prairie Redox (A16) (LRR K, L, R)		
Black Hist	ic (A3)		Thin Dark Surface	ce (S9) (L	RR R, MLRA	149B)	☐ 5 cm Mucky Peat or Peat (S	3) (LRR K, L, R)		
Hydrogen	Sulfide (A4)		Loamy Mucky M	ineral (F1)	(LRR K, L)		Dark Surface (S7) (LRR K, I	L)		
Stratified I	_ayers (A5)		Loamy Gleyed M	latrix (F2)			Polyvalue Below Surface (S	8) (LRR, K, L)		
Depleted I	Below Dark Surface (/	A11)	Depleted Matrix	(F3)			☐ Thin Dark Surface (S9) (LRI	R, K, L)		
Thick Darl	k Surface (A12)		Redox Dark Sur	ace (F6)			☐ Iron-Manganese Masses (F	12) (LRR, K, L)		
Sandy Mu	cky Mineral (S1)		Depleted Dark S	urface (F7	")		Piedmont Floodplain Soils (⁼ 19) (MLRA 149B)		
Sandy Gle	eyed Matrix (S4)		Redox Depression	ons (F8)			Mesic Spodic (TA6) (MLRA	144A, 145, 149B)		
Sandy Re	dox (S5)						Red Parent Material (F21)			
Stripped N	/latrix (S6)						Very Shallow Dark Surface	(TF12)		
							Other (Explain in Remarks)			
³ Indicators of	hydrophytic vegetatic	on and w	etland hydrology mu	st be pres	ent, unless d	isturbed o	r problematic			
Restrictive L	ayer (if observed):						Hydric Soil Present?			
C Type: ro	ompacted sand and d	lense	Denth (inches):	А			□ Yes ⊠ No			
Remarks: N below the soi	o indicators of hydric : I surface.	soil were	e present at the time	of the site	visit. Compa	cted sand	and dense roots were encounter	ed at four inches		

Project/Site: Marchall Maga Site	Marshall Township City/County: Calbour County Sampling Date: 9/15/21
Applicant/Owner: Marshall Area Economic Development Allian	City/County Cambing Date
Applicant/Owner. Marshall Area Economic Development Allan	State. Mi Sampling Point. <u>5P-5</u>
Investigator(s). Burns & McDonnell (EJM & AO)	Section, Township, Range. <u>334 125 Row</u>
	Local relief (concave, convex, none): <u>None</u> Siope (%): <u>U</u>
Subregion (LRR or MLRA): L Lat: 42.25926	<u>33</u> Long: <u>-84.998245</u> Datum: <u>NAD83</u>
Soil Map Unit Name: Udipsamments and Udorthents, r	nearly level to steep NWI Classification: N/A
Are climate/hydrologic conditions on the site typical for this time of	of year? 🛛 Yes 🗌 No (<i>If no, explain in Remarks</i>)
Vegetation Soil Hydrology	Δre "Normal Circumstances" present? ⊠ Yes □ No
	(If needed, explain any answers in Remarks)
SUMMARY OF FINDINGS – Attach site map showing sa	impling point locations, transects, important features, etc.
Yes No I	Remarks : Wetland 1 (W-1) is a Palustrine Emergent (PEM) wetland.
Hydrophytic Vegetation Present?	
Hydric Soil Present?	
Is the Sempled Area within a Wetland?	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one required; check all that apply	☑ □ Surface Soil Cracks (B6)
Surface Water (A1)	ed Leaves (B9)
High Water Table (A2)	na (B13)
Saturation (A3)	ts (B15)
Water Marks (B1)	ulfide Odor (C1)
Sediment Deposits (B2)	izospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Reduced Iron (C4) Stunted or Stressed Plants (D1)
	Surface (C7)
Inundation Visible on Aerial Imagery (B7)	ain in Remarks)
Sparsely Vegetated Concave Surface (B8)	
Denth	
Field Observations: Yes No <u>(inches):</u>	Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections, etc.), if available:
Surface Water Present?	
Water Table Present?	
Saturation Present?	
Wetland Hydrology Present?	
Remarks: Oxidized Rhizospheres on Living Roots (C3). Presence	
Position (D2).	······································

Sampling Point: SP-3

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. Tilia americana		5 %	Y	FACU	that are OBL, FACW, or FAC:	<u> </u>
2.		%			Total Number of Dominant	
3.		%			Species Across All Strata:	4_(B)
4		%			Percent of Dominant Species	
5		%			that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6		%			Prevalence Index worksheet:	
7		%				Multiply by
		<u> 5 % </u> =	Total Cover			
Sapling/Shrub Stratum	(Plot size: <u>15 ft. x 15 ft.</u>)				OBL species%	x 1 = <u>0</u>
1 Cornus racemosa		10 %	Y	FAC	FACW species%	x 2 = 0
2.		<u> </u>	<u> </u>		FAC species%	x 3 = <u>0</u>
3.		%			FACU species%	x 4 =
4.		%			UPL species %	x 5 = <u>0</u>
5.		%			Column Totals: 0 %	(A) 0 (B)
6		%			Dravelan er haden D/A	() <u> </u>
7		%			Prevalence Index = B/A =	
		10 % =	Total Cover		Hydrophytic Vegetation Indic	ators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				☐ 1 - Rapid Test for Hydrophy	tic Vegetation
1. Spartina pectinata		60 %	Y	FACW	☑ 2 - Dominance Test is >50%	, D
2. Solidago gigantea		15 %	N	FACW	□ 3 - Prevalence Index is ≤3 0	1
3. <i>Ipomoea purpurea</i>		15 %	N	FACU		no ¹ (Drovida
4. Sagittaria latifolia		5 %	<u>N</u>	OBL	supporting data in Remarks	or on a separate
5		<u>%</u>			sheet)	
6		%			Problematic Hydrophytic Ve	getation ¹ (Explain)
7 g		<u> </u>			¹ Indicators of hydric soil and wetlan	d hydrology must be
o		%			present, unless disturbed or problen	natic
10		<u> </u>			Definitions of Vegetation Stra	ita:
11.		%			Tree Missier Janks Olin (7.0 cm	
12.		%			diameter at breast height (DBH),	regardless of height.
		95 % =	Total Cover		Sanling/Shrub Woody plants k	on then 2 in DPU
Woody Vine Stratum	(Plot size: 30 ft. x 30 ft.)				and greater than 3.28 ft (1 m) tall.	
1 Vitio riporio	(1.101.01201. <u>00.11.7.00.11.</u>)	E 0/	V	EAC	Herb – All herbaceous (non-wood	tv) plants regardless
1. <u>vilis riparia</u> 2		<u> </u>	<u> </u>		of size, and woody plants less that	an 3.28 ft tall.
3		%			Woody vine – All woody vines ar	eater than 3 28 ft in
4.		%			height.	
		5 % =	Total Cover			
					Hydrophytic Vegetation Presen	tr ⊠ Yes ∐ No

Remarks (include photo numbers here or on a separate sheet): The Dominance Test confirmed hydrophytic vegetation at the time of the site visit.

(inches)	IVIAUIX		F	Redox Fea	tures	commu	le absence of mulcalors.)		
(Color (moist)	%	Color (moist)	%	Tvpe ¹	Loc ²	- Texture	Remarks	
0-2	10YR 3/1	100					Silty Clay Loam		
2-14	10YR 3/1	75	5YR 4/6	15	С	М	Silty Clay Loam		
			2.5YR 5/6	10	С	M/PL			
14-20	10YR 3/1	75	2.5YR 5/6	15	С	M/PL	Silty Clay Loam		
			5YR 4/6	10	C	М			
							- <u> </u>		
	,								
	·								
Type: C=Cor	ncentration, D=Depl	etion, RN	/=Reduced Matrix, M	IS=Maske	d Sand Graii	ns	² Location: PL=Pore Linin	g, M=Matrix	
Hydric Soil Ir	ndicators:						Indicators for Problematic Hyd	ric Soils ³ :	
] Histosol (A	A 1)		Dark Surface (S7	7) (LRR R ,	MLRA 149	B)	2 cm Muck (A10) (LRR K, L, MLRA 149B)		
☐ Histic Epip	edon (A2)		Polyvalue Below	Surface (S8) (MLRA '	147, 148)	Coast Prairie Redox (A16) (LRR K, L, R)		
Black Histi	ic (A3)		Thin Dark Surfac	;e (S9) (LF	RR R, MLRA	149B)	☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
Hydrogen	Sulfide (A4)		Loamy Mucky M	ineral (F1)	(LRR K, L)		Dark Surface (S7) (LRR K, L))	
Stratified L	ayers (A5)		☐ Loamy Gleyed Matrix (F2)				Polyvalue Below Surface (S8)	(LRR, K, L)	
Depleted E	Below Dark Surface	(A11)	Depleted Matrix (F3)				☐ Thin Dark Surface (S9) (LRR,	K , L)	
Thick Dark	surface (A12)		🛛 Redox Dark Surface (F6)				Iron-Manganese Masses (F12	2) (LRR, K, L)	
Sandy Mu	cky Mineral (S1)		Depleted Dark S	urface (F7)		☐ Piedmont Floodplain Soils (F19) (MLRA 149		
Sandy Gle	eyed Matrix (S4)		Redox Depression	ons (F8)			🗌 Mesic Spodic (TA6) (MLRA 144A, 145, 149		
☐ Sandy Red	dox (S5)						☐ Red Parent Material (F21)		
Stripped M	latrix (S6)						Very Shallow Dark Surface (T	F12)	
							Other (Explain in Remarks)		
Indicators of	hydrophytic vegetati	on and v	vetland hydrology mu	st be pres	ent, unless o	disturbed o	r problematic		
Restrictive La	ayer (if observed):						Hydric Soil Present?		
Гуре:			Depth (inches):				🛛 Yes 🔲 No		

Droigot/Site: Maraball Maga Si	ito		City/Count	Marshall Townsh	hip	ampling Data: 0/15/21		
Project/Site. Marshall Mega Si				y. <u>Calnoun County</u>	58			
Applicant/Owner: Marshall Are	a Economic De	evelopment Allia	ance	State:	MI	Sampling Point: <u>SP-4</u>		
Investigator(s): <u>Burns & McDo</u>	onnell (EJM & A	(0)	Se	ction, Township, Ran	ge: <u>S34 T2S</u>	R6W		
Landform (hillslope, terrace, etc.)) <u>Hillslope</u>		Local relief (c	oncave, convex, non	e): Concave	Slope (%): <u>5</u>		
Subregion (LRR or MLRA): L		Lat: <u>42.2593</u>	361	Long: <u>-84.9981</u>	79	Datum: NAD83		
Soil Map Unit Name:	Jdipsamments a	and Udorthents,	nearly level to s	teep	NWI Classifica	ation: N/A		
Are climate/hydrologic conditions	s on the site typ	ical for this time	of year?	Yes 🗌 No (If	no, explain in F	Remarks)		
Veg	etation Soil	Hydrology	• "		·			
Significantly Disturbed?			Are "	Normal Circumstance	es" present?	⊠ Yes ∐ No		
Naturally Problematic?				(If needed, explain any	answers in Rem	arks)		
SUMMARY OF FINDINGS - A	Attach site ma	ap showing s	ampling point	locations, transe	ects, importa	nt features, etc.		
	Ye	es No	Remarks: Sam	ple Plot (SP)-4 is loca	ated adjacent to	Wetland (W)-1.		
Hydrophytic Vegetation Present?	? E							
Hydric Soil Present?	C							
Wetland Hydrology Present?	Ľ							
Is the Sampled Area within a V	Vetland?							
IYDROLOGY								
Wetland Hydrology Indicators:					Secondarv Indi	cators (minimum of two required)		
Primary Indicators (minimum of c	one reauired: ch	neck all that app	n(v)		Surface Soil	Cracks (B6)		
Surface Water (A1)		□ Water-Stai	ned Leaves (B9)			atterns (B10)		
High Water Table (A2)			una (R13)					
\Box Saturation (A3)						Ines (Dio)		
$\square \text{ Matar Marks (B1)}$			Sulfida Odar (C1)					
				ospheres on Living Roots (C3) Saturation Visible on Aerial Imagon (C6)				
			f Deduced lines (Saturation V	Isible on Aerial Imagery (C9)		
			Reduced from (☐ Stunted or Stressed Plants (D1)			
				led Solis (C6)	Geomorphic Position (D2)			
			Surface (C7)		☐ Shallow Aquitard (D3)			
Inundation Visible on Aerial Ir	nagery (B7)	Other (Exp	lain in Remarks)		Microtopographic Relief (D4)			
Sparsely Vegetated Concave	Surface (B8)				FAC-Neutral	Test (D5)		
Field Observations:	Yes No	Depth	Describe Re	corded Data (stream	gauge, monitor	ring well, aerial photos, previous		
Surface Water Present?		<u>(incres).</u>	inspections,	elc.), il available.				
Water Table Present?								
Saturation Present?								
(includes capillary fringe)								
Wetland Hydrology Present?								
Remarks: No indicators of wetla	nd hydrology w	ere present at t	he time of the site	e visit.				

Sampling Point: SP-4

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. Tilia americana	3	25 %	Y	FACU	that are OBL, FACW, or FAC: <u>4 (</u> A)
2.		%			Total Number of Dominant
3.		%			Species Across All Strata: 9 (B)
4.		%			Percent of Dominant Species
5.		%			that are OBL, FACW, or FAC: <u>44%</u> (A/B)
6.		%			Dravalance Index worksheets
7		%			Prevalence index worksheet.
		25 % =	= Total Cover		Total % Cover of: Multiply by:
					OBL species% x 1 =0
Sapling/Shrub Strate	<u>um</u> (Plot size: <u>15 ft. x 15 ft.</u>)				FACW species % x 2 = 0
1. Lonicera maac	kii	30 %	Y	UPL	FAC species % x 3 = 0
2. Rhamnus catha	artica	10 %	Y	FAC	
3. Fraxinus penns	sylvanica	10 %	Y	FACW	FACU species% $x 4 = 0$
4		%			UPL species% x 5 =0
5		%			Column Totals: <u>0</u> % (A) <u>0</u> (B)
6		%			Prevalence Index = B/A =
7		%			
		50 % =	Total Cover		Hydrophytic Vegetation Indicators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				□ 1 - Rapid Test for Hydrophytic Vegetation
1. Toxicodendron	radicans	20 %	Y	FAC	□ 2 - Dominance Test is >50%
2. Rosa multiflora	1	10 %	Y	FACU	\Box 3 - Prevalence Index is <3 0 ¹
3. Symphyotrichu	ım lanceolatum	10 %	Y	FACU	
4. Solidago altissi	ima	5 %	N	FACU	supporting data in Remarks or on a separate
5		%			sheet)
6		%			Problematic Hydrophytic Vegetation ¹ (Explain)
7		%	. <u> </u>		¹ Indicators of hydric soil and wetland hydrology must be
8		%	. <u> </u>		present, unless disturbed or problematic
9		%_			Definitions of Verstation Strates
10		%	. <u> </u>		Demittons of vegetation Strata:
11			·		Tree – Woody plants 3 in. (7.6 cm) or more in
12.		%			diameter at breast height (DBH), regardless of height.
Woodv Vine Stratum	n (Plot size: 30 ft. x 30 ft.)	45 % =	 Total Cover 		Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
1 Borthonooicour		15 0/	V		Herb – All berbaceous (non-woody) plants, regardless
1. <u>Partnenocissus</u>	s quinqueiona	10 %	<u> </u>		of size, and woody plants less than 3.28 ft tall.
2. <u>vius riparia</u> 3		0/	<u> </u>		Woody vine - All woody vines greater than 3.29 ft in
۵ ۵					height.
т.			- Total Caver		
		23 %			Hydrophytic Vegetation Present? Yes No

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.

Profile Desc	ription: (Describe t	o the de	pth needed to docu	ment the	indicator or	confirm t	he absence of indicators.)			
Depth	Matrix		I	Redox Fea	atures		_			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-4	10YR 2/1	60					Sandy Clay			
	10YR 7/2	30						Sand		
	10YR 4/4	10								
4-14	10YR 2/1	65					Sandy Clay			
	10YR 4/4	30								
	10YR 7/2	5						Sand		
			_							
¹ Type: C=Ce	oncentration, D=Dep	etion, RI	M=Reduced Matrix, M	IS=Maske	ed Sand Grai	าร	² Location: PL=Pore Lini	ng, M=Matrix		
Hydric Soil	Indicators:						Indicators for Problematic Hy	dric Soils ³ :		
Histosol (A1)		Dark Surface (S	7) (LRR R	, MLRA 149	3)	2 cm Muck (A10) (LRR K, L	, MLRA 149B)		
🗌 Histic Epi	pedon (A2)		Polyvalue Below	Surface ((S8) (MLRA [•]	147, 148)	🗌 Coast Prairie Redox (A16) (I	LRR K, L, R)		
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B)					149B)	☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)				
Hydroger	n Sulfide (A4)	🗌 Loamy Mucky M	ineral (F1) (LRR K, L)		Dark Surface (S7) (LRR K, I	∟)			
Stratified Layers (A5) Loamy Gle				/atrix (F2)			Polyvalue Below Surface (Salar)	8) (LRR, K, L)		
Depleted Below Dark Surface (A11) Depleted Matrix (F3)						☐ Thin Dark Surface (S9) (LRF	R, K, L)			
Thick Dark Surface (A12)				Iron-Manganese Masses (F ²)	12) (LRR, K, L)					
Sandy Mu	ucky Mineral (S1)		Depleted Dark S	urface (F7	7)		Piedmont Floodplain Soils (F	⁻ 19) (MLRA 149B)		
☐ Sandy Gl	eyed Matrix (S4)		🗌 Redox Depressi	ons (F8)			Mesic Spodic (TA6) (MLRA] Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
Sandy Re	edox (S5)						Red Parent Material (F21)			
Stripped I	Matrix (S6)						Very Shallow Dark Surface (TF12)			
							Other (Explain in Remarks)			
³ Indicators o	f hydrophytic vegetat	ion and v	wetland hydrology mu	ist be pres	sent, unless o	listurbed c	or problematic			
Restrictive I	Layer (if observed):						Hydric Soil Present?			
C Type: r	Compacted sand and oots	dense	Depth (inches):	14			🗆 Yes 🖾 No			
Bemerker N	le indiactore of hudri		re present at the time	of the eite	visit Comp		l and dance reate were anacuntar	ad at 14 inchas		
below the so	il surface.	soli wei	re present at the time	or the site	e visit. Compa	acted sand	and dense roots were encounter	ed at 14 inches		

Project/Site: Marshall Mora S	ito		City/County:	Marshall Townsh	ip	Sampling Data: 0/15/21	
			City/County.				
Applicant/Owner: Marshall Are	a Economic D	evelopment Allia	ance	State:	MI	Sampling Point: <u>SP-5</u>	
Investigator(s): Burns & McDo	onnell (EJM & /	40)	Sectio	n, Township, Rang	ge: <u>S34 T2</u>	2S R6W	
Landform (hillslope, terrace, etc.) Flat		Local relief (con	cave, convex, none	e): <u>None</u>	Slope (%): 0	
Subregion (LRR or MLRA): L		Lat: 42.259	304	Long: <u>-85.00228</u>	36	Datum: NAD83	
Soil Map Unit Name:	alamazoo loai	m, 0 to 2 percen	nt slopes		NWI Classif	ication: PSS1C	
Are climate/hydrologic conditions	s on the site typ	pical for this time	e of year? 🛛 🛛 Ye	es 🗌 No (Ifr	no, explain ii	n Remarks)	
Veg	etation Soi	il Hydrology	Aro "No	mal Circumstanco	a" procont?		
Significantly Disturbed?					s present:		
Naturally Problematic?			("	netucu, czpiani any	diswers in its	enidiksy	
SUMMARY OF FINDINGS – A	Attach site m	ap showing s	sampling point lo	cations, transe	cts, impor	tant features, etc.	
	Y	′es No	Remarks: Wetland	2 (W-2) is a Palus	strine Emerg	ent (PEM)/Palustrine Scrub-Shrub	
Hydrophytic Vegetation Present	?		(PSS) wetland loca	ated in the floodplai	in of the sou	th branch of the Kalamazoo River.	
Hydric Soil Present?	I						
Wetland Hydrology Present?	1						
Is the Sampled Area within a V	Vetland?						
HYDROLOGY							
Wetland Hydrology Indicators:				<u>9</u>	Secondary Ir	ndicators (minimum of two required)	
Primary Indicators (minimum of e	one required; c	heck all that ap	<u>ply)</u>	Г] Surface S	oil Cracks (B6)	
Surface Water (A1)		🗌 Water-Stai	ined Leaves (B9)	 Г	_ ∃ Drainage	Patterns (B10)	
High Water Table (A2)		Aquatic Fa	auna (B13)	Г	 ∃ Moss Trin	Lines (B16)	
☐ Saturation (A3)		☐ Marl Depo	sits (B15)	с Г] Dry-Seaso	on Water Table (C2)	
☐ Water Marks (B1)		☐ Hvdroaen	Sulfide Odor (C1)		Cravfish F	Surrows (C8)	
\Box Sediment Deposits (B2)			Rhizospheres on Livi	na Roots (C3) F	☐ Saturation	Visible on Aerial Imagery (C9)	
\square Drift Deposits (B3)			of Reduced Iron (C4) [r Stressed Plants (D1)	
\square Algal Mat or Crust (B4)			n Reduction in Tillec	/ □ L Soils (C6) □	\Box Geomorphic Position (D2)		
\square Iron Deposits (B5)			Surface (C7)	соло (00) — [quitard (D3)	
	magery (B7)		plain in Remarks)	nin Romarks)			
	Surface (B8)		Jain In Kennanks)			graphic Relief (D4)	
				L			
Field Observations:	Yes No	Depth (inches):	Describe Recon inspections, etc	rded Data (stream ;;), if available:	gauge, moni	itoring well, aerial photos, previous	
Surface Water Present?				.,,			
Water Table Present?							
Saturation Present?							
(includes capillary fringe)							
Wetland Hydrology Present?							
Remarks: Presence of Reduced	Iron (C4) conf	irmed wetland h	ydrology.				

Sampling Point: SP-5

Tree Stratum	(Plot size: 30 ft x 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1	(1 101 0120. <u>00 11. × 00 11.</u>)	<u>%</u>			Number of Dominant Species that are OBL, FACW, or FAC:	4_(A)
2		%			Total Number of Dominant	
3.		%			Species Across All Strata:	<u> </u>
4.		%			Percent of Dominant Species	
5.		%			that are OBL, FACW, or FAC:	<u>80%</u> (A/B)
6		%			Brovalanca Index workshoot:	
7		%			Flevalence index worksheet.	
		0 %	Total Cover	-	Total % Cover of:	Multiply by:
Conling/Chrub Stratum	(DlotoiTov1Eftv1Eftv)				OBL species%	x 1 = <u>0</u>
Sapling/Shrub Stratum	(Plot size: <u>15 it. x 15 it.</u>)				FACW species%	x 2 =0
1. Rhamnus cathartica		10 %	<u>Y</u>	FAC	FAC species %	x 3 = 0
2. Frangula alnus		2 %	<u> </u>	FAC	FACIL species %	x 4 = 0
3.				. <u> </u>		x = <u>0</u>
4		%	<u> </u>		UPL species%	x = 0
5		%		·	Column Totals: 0%	(A) <u>0</u> (B)
0 7			·		Prevalence Index = B/A =	
T		<u>%</u> 12 % =	Total Cover		Hudrophytic Vegetation India	atora
Line Otration						ators.
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				1 - Rapid Test for Hydrophy	tic Vegetation
1. Phalaris arundinacea		60 %	<u> </u>	FACW	☑ 2 - Dominance Test is >50%)
2. Pueraria montana		30 %	<u> </u>	UPL	☐ 3 - Prevalence Index is ≤3.0	1
3. <u>Solidago gigantea</u>		10 %	<u> </u>	FACW	4 - Morphological Adaptation	ns ¹ (Provide
4. <u>Symphyotrichum lanced</u>	platum	<u> </u>	<u> </u>		supporting data in Remarks	or on a separate
5. <u>Rubus occidentalis</u>		2 %	<u> </u>		sneet)	
 Amaraninus retronexus Lythrum salicaria 		2 %	 		Problematic Hydrophytic Ve	getation ¹ (Explain)
8		%			¹ Indicators of hydric soil and wetlan	d hydrology must be
9.		%			present, unless disturbed of problem	
10.		%			Definitions of Vegetation Stra	ta:
11.		%			Tree Weedy plants 2 in (7.6 cm) or moro in
12.		%			diameter at breast height (DBH), i	egardless of height.
		111 % =	Total Cover	-	Sanling/Shrub Woody plants is	es than 2 in DPU
Woody Vine Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)				and greater than 3.28 ft (1 m) tall.	
1 Vitis rinaria	· · · · · · · · · · · · · · · · · · ·	5%	V	FAC	Herb – All herbaceous (non-wood	lv) plants, regardless
1. <u>Vilis Inpana</u> 2		%	<u> </u>		of size, and woody plants less that	n 3.28 ft tall.
3.		<u>%</u> %		·	Woody vine - All woody vines ar	eater than 3.28 ft in
4.		%			height.	
		5 % =	Total Cover		Hydrophytic Vegetation Present	? 🛛 Yes 🗌 No

Remarks (include photo numbers here or on a separate sheet): The Dominance Test confirmed hydrophytic vegetation at the time of the site visit.

Profile Desc	ription: (<i>Describe t</i> e Matrix	o the de	epth needed to docui	<i>ment the</i> Redox Fea	<i>indicator or</i> atures	confirm t	he absence of indicators.)			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	l oc ²	- Texture	Remarks		
0-2	10YR 3/2	100					Sandy Clay Loam			
2-16	10YR 3/1	70	7.5YR 4/6	10	С	М	Sandy Clay Loam			
	10YR 6/2	20						Sand		
16-24	10YR 3/1	60	7.5YR 4/6	10	С	М	Sandy Clay Loam			
	10YR 6/2	20	10YR 5/1	10	С	М		Sand		
					·					
					·					
					·					
¹ Type: C=Co	oncentration, D=Depl	etion, R	M=Reduced Matrix, N	IS=Maske	ed Sand Grair	IS	² Location: PL=Pore Linir	ng, M=Matrix		
Hydric Soil I	ndicators:						Indicators for Problematic Hyd	Iric Soils ³ :		
Histosol (A1)		Dark Surface (S	7) (LRR R	, MLRA 1491	3)	2 cm Muck (A10) (LRR K, L,	MLRA 149B)		
Histic Epi	pedon (A2)		Polyvalue Below	Surface ((S8) (MLRA 1	47, 148)	🗌 Coast Prairie Redox (A16) (L	.RR K, L, R)		
Black Hist	tic (A3)		Thin Dark Surfac	ce (S9) (L	RR R, MLRA	149B)	☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
Hydrogen	Sulfide (A4)		🗌 Loamy Mucky M	ineral (F1) (LRR K, L)		🔲 Dark Surface (S7) (LRR K, L)		
Stratified	Layers (A5)		Loamy Gleyed Matrix (F2)				Polyvalue Below Surface (S8) (LRR, K, L)		
Depleted	Below Dark Surface	(A11)	Depleted Matrix (F3)				☐ Thin Dark Surface (S9) (LRR	, K , L)		
Thick Dar	k Surface (A12)		🛛 Redox Dark Surf	ace (F6)			☐ Iron-Manganese Masses (F12) (LRR, K, L)			
🗌 Sandy Mu	ıcky Mineral (S1)		Depleted Dark S	urface (F	7)		Piedmont Floodplain Soils (F19) (MLRA 149B)			
Sandy Gle	eyed Matrix (S4)		Redox Depression	ons (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
Sandy Re	dox (S5)						Red Parent Material (F21)			
Stripped N	Matrix (S6)						Very Shallow Dark Surface (FF12)		
							Other (Explain in Remarks)			
³ Indicators of	hydrophytic vegetat	ion and	wetland hydrology mu	st be pres	sent, unless c	isturbed o	r problematic			
Restrictive L	ayer (if observed):						Hydric Soil Present?			
Туре:			Depth (inches):				🖾 Yes 🔲 No			
Remarks: R	edox Dark Surface (F6) cont	firmed hydric soils.							

Project/Site: Marshall Mega Si	te		Citv/Coun	Marshall Townshi	p Sampling Date: 9/15/21	
Applicant/Owner: Marshall Are	a Economic Dr			Stata:	MI Sampling Point: SP 6	
Applicant/Owner. <u>Marshall Are</u>				State.		
		.0)		ction, Townsnip, rang		
Landform (hillslope, terrace, etc.)	Hillslope		Local reliet (concave, convex, none): <u>Concave</u> Slope (%): <u>5</u>	
Subregion (LRR or MLRA):		Lat: <u>42.259</u> 4	116	Long:85.002173	3 Datum: <u>NAD83</u>	
Soil Map Unit Name: K	alamazoo loam	1, 0 to 2 percen	t slopes		NWI Classification: PSS1C	
Are climate/hydrologic conditions	on the site typi	ical for this time	e of year?	Yes 🗌 No (If n	o, explain in Remarks)	
Vege	tation Soil	Hydrology	Are	Mamal Circumstances	"	
Significantly Disturbed?			Ale			
Naturally Problematic?				(If needed, explain any c	answers in Remarks)	
SUMMARY OF FINDINGS – A	ttach site ma	ap showing s	ampling poin	t locations, transec	ts, important features, etc.	
	Ye	es No	Remarks: San	nple Plot (SP)-6 is locat	ed adjacent to Wetland (W)-2.	
Hydrophytic Vegetation Present?	\triangleright					
Hydric Soil Present?						
Wetland Hydrology Present?	E					
Is the Sampled Area within a W	/etland?					
HYDROLOGY	_	_				
Wetland Hydrology Indicators:				<u>S</u>	econdary Indicators (minimum of two required)	
Primary Indicators (minimum of c	ne required; ch	eck all that app	<u>oly)</u>] Surface Soil Cracks (B6)	
Surface Water (A1)		🗌 Water-Stai	ned Leaves (B9)] Drainage Patterns (B10)	
☐ High Water Table (A2)		🗌 Aquatic Fa	una (B13)	C] Moss Trim Lines (B16)	
Saturation (A3)		Marl Depos	sits (B15)	C] Dry-Season Water Table (C2)	
Water Marks (B1)		Hydrogen S	Sulfide Odor (C1)] Crayfish Burrows (C8)	
Sediment Deposits (B2)		Oxidized R	hizospheres on	ospheres on Living Roots (C3)		
Drift Deposits (B3)		Presence of	of Reduced Iron	Reduced Iron (C4)		
Algal Mat or Crust (B4)		Recent Iron	n Reduction in T	Reduction in Tilled Soils (C6)		
Iron Deposits (B5)		Thin Muck	Surface (C7)	C] Shallow Aquitard (D3)	
Inundation Visible on Aerial In	nagery (B7)	Other (Exp	lain in Remarks] Microtopographic Relief (D4)	
Sparsely Vegetated Concave	Surface (B8)] FAC-Neutral Test (D5)	
		Depth	Describe R	ecorded Data (stream g	auge, monitoring well, aerial photos, previous	
Field Observations:	Yes No	<u>(inches):</u>	inspections	, etc.), if available:		
Surface Water Present?						
Water Table Present?						
Saturation Present? (includes capillary fringe)						
Wetland Hydrology Present?						
Remarks: No indicators of wetlan	nd hydrology w	ere present at t	he time of the si	te visit.		

Sampling Point: SP-6

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet	:
1. Quercus palustris		40 %	Y	FACW	that are OBL, FACW, or FAC	5 (A)
2.		%			Total Number of Dominant	
3.		%			Species Across All Strata:	<u> </u>
4.		%			Percent of Dominant Species	
5		%			that are OBL, FACW, or FAC	:: <u>/1% (</u> A/B)
6		%			Prevalence Index workshee	t.
7		%			Total 0/ Cover of	
		40 %	= Total Cover			
Sanling/Shrub Stratum	(Plot size: 15 ft x 15 ft)				OBL species9	% x 1 = <u>0</u>
Saping/Shirub Stratum	(FIOL SIZE. <u>15 IL X 15 IL</u>)				FACW species	% x 2 = <u>0</u>
1. <u>Rhamnus cathartica</u>		15 %	<u> </u>	FAC	FAC species	% x 3 = 0
2. Frangula alnus		<u> </u>	<u>Y</u>	FAC	FACU species	$6 \times 4 = 0$
3. Quercus paiustris		2 %	<u>N</u>	FACW		/ x = 0
4 5		%			UPL species	% X 3 - <u>U</u>
5					Column Totals: 09	% (A) <u>0</u> (B)
7		%			Prevalence Index = B/A =	
		50 %	= Total Cove			
					Hydrophytic Vegetation Ind	icators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				1 - Rapid Test for Hydropl	nytic Vegetation
1. Toxicodendron radica	ans	20 %	Y	FAC	☐ 2 - Dominance Test is >50)%
2. Solidago altissima		20 %	Y	FACU	☐ 3 - Prevalence Index is ≤3	3.0 ¹
3. Lysimachia nummula	ria	5 %	N	FACW		iono ¹ (Provide
4.		%			supporting data in Remark	ks or on a separate
5		%_		. <u> </u>	sheet)	
6				. <u></u>	Problematic Hydrophytic V	/egetation ¹ (Explain)
/		%			¹ Indicators of hydric soil and wetl	and hydrology must be
o		<u> </u>			present, unless disturbed or probl	ematic
9 10					Definitions of Vegetation St	rata:
10		%		·		
12		%			Tree – Woody plants 3 in. (7.6 diameter at breast beight (DBH	cm) or more in) regardless of height
		45 %	- Total Cover			, regulated of height.
Maadu Vina Chuatum		40 /0			and greater than 3 28 ft (1 m) ta	less than 3 in. DBH
woody vine Stratum	(Plot size: <u>30 it. x 30 it.</u>)					
1. <u>Toxicodendron radica</u>	ans	20 %	<u>Y</u>	FAC	Herb – All herbaceous (non-wo of size, and woody plants less t	ody) plants, regardless han 3 28 ft tall
2. Parthenocissus quinq	uefolia	15 %	<u>Y</u>	FACU		
3.		%			Woody vine – All woody vines	greater than 3.28 ft in
4		%	·	·	noight.	
		35 % =	= Total Cover		Hydrophytic Vegetation Prese	ent? 🛛 Yes 🔲 No

Remarks (include photo numbers here or on a separate sheet): The Dominance Test confirmed hydrophytic vegetation.

Profile Description: (Describe to the d	epth needed to document the indicator of Redox Features	confirm t	he absence of indicators.)	
/inchos) Color (maint) %		1.002	- Toxturo	Pomorko
		LOC	Sand	Remarks
			Janu	
¹ Type: C=Concentration, D=Depletion, F	RM=Reduced Matrix, MS=Masked Sand Gra	ns	² Location: PL=Pore Lining	, M=Matrix
Hydric Soil Indicators:			Indicators for Problematic Hydr	ic Soils³:
☐ Histosol (A1)	🔲 Dark Surface (S7) (LRR R, MLRA 149	B)	2 cm Muck (A10) (LRR K, L, N	ILRA 149B)
☐ Histic Epipedon (A2)	Delyvalue Below Surface (S8) (MLRA	147, 148)	🗌 Coast Prairie Redox (A16) (LR	R K, L, R)
☐ Black Histic (A3)	☐ Thin Dark Surface (S9) (LRR R, MLR/	149B)	5 cm Mucky Peat or Peat (S3)	(LRR K, L, R)
☐ Hydrogen Sulfide (A4)	☐ Loamy Mucky Mineral (F1) (LRR K, L)		Dark Surface (S7) (LRR K, L)	
Stratified Layers (A5)	Loamy Gleyed Matrix (F2)		Polyvalue Below Surface (S8)	(LRR, K, L)
Depleted Below Dark Surface (A11)	Depleted Matrix (F3)		☐ Thin Dark Surface (S9) (LRR,	K, L)
Thick Dark Surface (A12)	Redox Dark Surface (F6)		Iron-Manganese Masses (F12) (LRR, K, L)
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)		Piedmont Floodplain Soils (F1	9) (MLRA 149B)
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)		Mesic Spodic (TA6) (MLRA 14	4A, 145, 149B)
☐ Sandy Redox (S5)			Red Parent Material (F21)	
Stripped Matrix (S6)			Very Shallow Dark Surface (TF	-12)
			Other (Explain in Remarks)	
³ Indicators of hydrophytic vegetation and	wetland hydrology must be present, unless	disturbed o	r problematic	
Restrictive Layer (if observed):			Hydric Soil Present?	
Type: Rock	Depth (inches): 4		🗌 Yes 🖾 No	
Remarks: No indicators of hydric soil w	ere present at the time of the site visit. Rock	was encou	ntered at four inches below the soil s	surface.

Project/Site: Marshall Mega Si	te		City/County-	Marshall Townsl	hip '	Sampling Date: 9/15/21
Applicant/Owner: Marshall Are	a Economia D	ovelenment Allia		State:	MI	Sampling Date: SP 7
Investigator(s): Burns & McDo	onnell (FJM & A		Sectio	on Township Ran	de: S33 T	SR6W
Landform (hillslope terrace etc.)	Flat in den	ression	Local relief (con	cave convex non	e): None	Slope (%): 0
Subregion (LRR or MLRA):		Lat: 42 2602	72	Long: -85 0033	a	Clope (78):
Soil Man Unit Name:	alamazoo loar	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	slopes	Long00.0000		fication: PEM1C
		ii, 0 to 2 percent	stopes X			
Are climate/hydrologic conditions	on the site typ	oical for this time	of year? X Ye	es ∐No (If	no, explain i	n Remarks)
Vege Significantly Disturbed?	etation Soi	I Hydrology	Are "No	rmal Circumstance	es" present?	🛛 Yes 🗌 No
Naturally Problematic?			(1	f needed, explain any	, answers in R	emarks)
		- an abowing o	ompling point k	actions transs	oto impor	tant factures ato
SUMMART OF FINDINGS - A	mach site m	ap showing s			ects, impor	tant leatures, etc.
Lludraphytic Vegetation Dresent?	Y v	es No	Remarks: Wetland	d 3 (W-3) is a Palu	istrine Emerg	jent (PEM) wetland.
Hydrophytic Vegetation Present?	<u>ן</u> ז					
Wetland Hydrology Present?	L T					
Is the Sampled Area within a M	votland? [
					<u> </u>	
Wetland Hydrology Indicators:	. ,				Secondary In	ndicators (minimum of two required)
Primary Indicators (minimum of c	ine required; c	neck all that appl	<u>V)</u>		☐ Surface S —	oil Cracks (B6)
Surface Water (A1)		Water-Stain	ed Leaves (B9)		Drainage	Patterns (B10)
High Water Table (A2)		Aquatic Fau	ina (B13)		☐ Moss Trin	n Lines (B16)
Saturation (A3)		∐ Marl Depos	its (B15)		Dry-Seas	on Water Table (C2)
☐ Water Marks (B1)		⊠ Hydrogen S	ulfide Odor (C1)		Crayfish E	Burrows (C8)
Sediment Deposits (B2)		☐ Oxidized Rł —	nizospheres on Livi	ng Roots (C3)	Saturatior	NVisible on Aerial Imagery (C9)
Drift Deposits (B3)		Presence of	f Reduced Iron (C4	.)	Stunted o	r Stressed Plants (D1)
Algal Mat or Crust (B4)		Recent Iron	Reduction in Tilleo	d Soils (C6)	Geomorp	hic Position (D2)
Iron Deposits (B5)		Thin Muck S	Surface (C7)		Shallow A	quitard (D3)
Inundation Visible on Aerial In	nagery (B7)	Other (Expl	ain in Remarks)		Microtopo	graphic Relief (D4)
Sparsely Vegetated Concave	Surface (B8)				FAC-Neu	tral Test (D5)
Field Observations:	Yes No	Depth	Describe Reco	rded Data (stream	gauge, mon	itoring well, aerial photos, previous
Surface Water Present?		<u>(inoneo).</u>				
Water Table Present?		18				
Saturation Present?		15				
(includes capillary fringe)						
Wetland Hydrology Present?						
Remarks: Hydrogen Sulfide Odd FAC-Neutral Test (D5) confirmed	r (C1), Presen I wetland hvdro	ce of Reduced Ir	on (C4), Saturatior	NVisible on Aerial	Imagery (C9)), Geomorphic Position (D2), and
	notiana nyare	logy.				

Sampling Point: SP-7

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1		%			that are OBL, FACW, or FAC:	<u> </u>
2.		%			Total Number of Dominant	
3.		%			Species Across All Strata:	<u> 1 (</u> B)
4.		%			Percent of Dominant Species	
5		%			that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6		%			Prevalence Index worksheet:	
7		%			Total % Cover of:	Multiply by:
		0 % =	= Total Cover			
Sapling/Shrub Stratum	(Plot size: 15 ft, x 15 ft.)				OBL species%	x 1 = <u>0</u>
<u> </u>	(0/			FACW species%	x 2 = <u>0</u>
1 2		<u>70</u>			FAC species%	x 3 =
3		<u> </u>			FACU species%	x 4 = <u>0</u>
4.		%			UPL species %	x 5 = 0
5.		%			Column Totals 0 %	(A) 0 (B)
6.		%				
7		%			Prevalence Index = B/A =	
		=	= Total Cover		Hydrophytic Vegetation Indic	ators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				🛛 1 - Rapid Test for Hydrophy	tic Vegetation
1. Phalaris arundinacea		90 %	Y	FACW	☐ 2 - Dominance Test is >50%)
2. Scirpus cyperinus		5 %	<u>N</u>	OBL	□ 3 - Prevalence Index is ≤3 0	1
3. Carex sp.		5 %	N	UNK		aal (Dravida
4. <u>Lythrum salicaria</u>		2 %	<u>N</u>	OBL	supporting data in Remarks	or on a separate
5		<u>%</u>	. <u></u>		sneet)	
7		<u>/0</u>			Problematic Hydrophytic Ve	getation ¹ (Explain)
8.		<u> </u>			¹ Indicators of hydric soil and wetlan	d hydrology must be
9.		%				latic
10.		%			Definitions of Vegetation Stra	ta:
11.		%			Tree – Woody plants 3 in (7.6 cm)) or more in
12		%			diameter at breast height (DBH),	regardless of height.
		102 % =	= Total Cover		Sapling/Shrub – Woody plants le	ess than 3 in. DBH
Woody Vine Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)				and greater than 5.26 ft (1 ff) tail.	
1		%			Herb – All herbaceous (non-wood	ly) plants, regardless
2		%			or size, and woody plants less the	in 0.20 it tall.
3		<u>%</u>			Woody vine – All woody vines gr	eater than 3.28 ft in
4		%				
		0 % =	= Total Cover		Hydrophytic Vegetation Present	? 🛛 Yes 🗌 No

Remarks *(include photo numbers here or on a separate sheet)*: The Rapid Test for Hydrophytic Vegetation confirmed hydrophytic vegetation at the time of the site visit. The sedge species (*Carex* sp.) could not be identified to the species level at the time of the site investigation. The identification of this species would not change the hydrophytic vegetation determination.

Profile Desc	ription: (<i>Describe t</i> Matrix	o the dep	th needed to docu	ment the Redox E	indicator or	confirm t	he absence of indicators.)		
Depth (inchos)	Color (moist)	0/_	Color (moist)	0/	Typo ¹	L oc ²	- Toxturo	Pomarka	
		100		70	Туре	LUC	Silty Clay Loam	Remarks	
6-15	10YR 2/1	90	5VR 3/4	10		М	Silty Clay Loam		
15-20	10YR 2/1	100	311(3/4				Sandy Clay Loam	Pebbles present	
1Tupo: 0=0a							21 contion: DI =Doro Li		
Hydric Soil I	ndicators:	ielion, Rivi	-Reduced Mainx, N	13-IVIASKE		15	Indicators for Problematic H	vdric Soils ³ :	
Histosol (A	41)		Dark Surface (S	7) (LRR F	R, MLRA 1491	B)	2 cm Muck (A10) (LRR K,	, MLRA 149B)	
🗌 Histic Epip	oedon (A2)		Polyvalue Below	/ Surface	(S8) (MLRA 1	147, 148)	Coast Prairie Redox (A16)	(LRR K, L, R)	
Black Hist	ic (A3)		Thin Dark Surfac	ce (S9) (L	RR R, MLRA	149B)	☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
Hydrogen	Sulfide (A4)		Loamy Mucky M	ineral (F1) (LRR K, L)		Dark Surface (S7) (LRR K,	, L)	
Stratified I	_ayers (A5)] Loamy Gleyed Matrix (F2)				Polyvalue Below Surface (S8) (LRR, K, L)	
Depleted I	Below Dark Surface	(A11)	Depleted Matrix (F3)				Thin Dark Surface (S9) (LF	RR, K, L)	
☐ Thick Darl	k Surface (A12)	()	☐ 2 option matter (1 o) ⊠ Redox Dark Surface (F6)				☐ Iron-Manganese Masses (F	=12) (LRR. K. L)	
□ Sandy Mu	cky Mineral (S1)						Piedmont Floodplain Soils	(F19) (MI RA 149B)	
Sandy Gle	aved Matrix (S4)			ons (F8)	• /		Mesic Spodic (TA6) (MLR	144A 145 149B)	
	dox (S5)			0113 (1 0)			\square Red Parent Material (F21)		
	40x(00)						\Box Very Shallow Dark Surface (TE12)		
							U Very Shallow Dark Surface (TF12)		
2)	
³ Indicators of	hydrophytic vegetat	ion and w	etland hydrology mu	ist be pre	sent, unless c	disturbed c	or problematic		
Restrictive L	ayer (if observed):		Dopth (inchoo):				Hydric Soil Present?		
Demeriker D	adau Dark Curfaaa (
Remarks: R	edox Dark Surface (F6) confin	med hydric solls.						

Droiget/Site: Marshall Maga Si	ito		City/Countyr	Marshall Townshi	ip	Compling Date: 0/15/21	
Project/Site: Marshall Mega Si			City/County:	Calnoun County	8	Sampling Date: <u>9/15/21</u>	
Applicant/Owner: Marshall Are	a Economic De	evelopment Allia	ance	State:	MI	Sampling Point: <u>SP-8</u>	
Investigator(s): <u>Burns & McDo</u>	onnell (EJM & A	0)	Secti	on, Township, Rang	e: <u>S33 T2S</u>	5 R6W	
Landform (hillslope, terrace, etc.)) <u>Hillslope</u>		Local relief (cor	icave, convex, none	e): Concave	Slope (%): 10	
Subregion (LRR or MLRA): L		Lat: 42.260	342	Long: <u>-85.00348</u>	3	Datum: NAD83	
Soil Map Unit Name: K	Calamazoo loan	n, 0 to 2 percen	t slopes		NWI Classific	ation: N/A	
Are climate/hydrologic conditions	s on the site typ	ical for this time	e of year? 🛛 🛛 Y	es 🗌 No (If r	no, explain in	Remarks)	
Veg	etation Soil	Hydrology					
Significantly Disturbed?			Are "No	ormal Circumstances	s" present?	🛛 Yes 🗌 No	
Naturally Problematic?			(1	If needed, explain any a	answers in Ren	narks)	
SUMMARY OF FINDINGS – A	Attach site ma	ap showing s	ampling point l	ocations, transed	cts, importa	int features, etc.	
	Ye	es No	Remarks: Sample	e Plot (SP)-8 is locat	ted adjacent t	o Wetland (W)-3.	
Hydrophytic Vegetation Present?	? 🛛 🖸						
Hydric Soil Present?							
Wetland Hydrology Present?	C						
Is the Sampled Area within a W	Vetland?						
HYDROLOGY							
Wetland Hydrology Indicators:				c	Socondary Ind	licators (minimum of two required)	
Primary Indicators (minimum of	one required: cł	eck all that an		<u> </u>			
	ine required, cr	Wotor Stai	<u>ny)</u>		J Surface Sol	I Cracks (B6)	
			neu Leaves (D9)	L] Drainage Pa	atterns (B10)	
				L	Moss Trim I	∟ines (B16)	
Saturation (A3)			sits (B15)	L	」Dry-Seasor -	i Water Table (C2)	
☐ Water Marks (B1)			Sulfide Odor (C1)		Crayfish Bu	rrows (C8)	
Sediment Deposits (B2)			Rhizospheres on Liv	ing Roots (C3)	Saturation Visible on Aerial Imagery (C9)		
Drift Deposits (B3)		Presence of	of Reduced Iron (C4	1)	Stunted or Stressed Plants (D1)		
☐ Algal Mat or Crust (B4)		Recent Iro	n Reduction in Tille	d Soils (C6)	Geomorphic Position (D2)		
☐ Iron Deposits (B5)		Thin Muck	Surface (C7)	Ľ	Shallow Aquitard (D3)		
Inundation Visible on Aerial Ir	nagery (B7)	Other (Exp	lain in Remarks)	Ľ	Microtopographic Relief (D4)		
Sparsely Vegetated Concave	Surface (B8)			Ľ	FAC-Neutra	al Test (D5)	
Field Observations:	Vac Na	Depth	Describe Reco	orded Data (stream g	gauge, monito	pring well, aerial photos, previous	
Field Observations:		<u>(inches):</u>	inspections, et	c.), if available:			
Surface Water Present?							
Water Table Present?							
(includes capillary fringe)							
Wetland Hydrology Present?							
Remarks: No indicators of wetla	nd hydrology w	ere present at t	he time of the site	/isit.			
	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						

Sampling Point: SP-8

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.		%			that are OBL, FACW, or FAC:	1_(A)
2.		%			Total Number of Dominant	
3.		%			Species Across All Strata:	1_(B)
4.		%			Percent of Dominant Species	4000((A/P)
5		%			that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6		%			Prevalence Index worksheet:	
7		%_		<u> </u>	Total % Cover of	Multiply by
		0 % =	 Total Cover 			
Sapling/Shrub Stratum	(Plot size: 15 ft. x 15 ft.)				OBL species%	x 1 = <u>0</u>
1	·,	%			FACW species%	x 2 =
2		<u> </u>			FAC species%	x 3 =
3.		%			FACU species%	x 4 =
4.		%			UPL species%	x 5 = <u>0</u>
5.		%			Column Totals: 0 %	(A) 0 (B)
6		%			Drevelence Index = D/A =	.,,
7		%				
		0 % =	- Total Cover		Hydrophytic Vegetation Indica	ators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				🛛 1 - Rapid Test for Hydrophyt	ic Vegetation
1. Phalaris arundinacea		90 %	Y	FACW	☐ 2 - Dominance Test is >50%	
2. Cirsium arvense		5 %	<u>N</u>	FACU	□ 3 - Prevalence Index is ≤3.0	1
3		%			□ 1 - Morphological Adaptation	e ¹ (Provido
4		<u>%</u>			supporting data in Remarks	or on a separate
5		%			sheet)	
0 7		%			Problematic Hydrophytic Veg	getation ¹ (Explain)
8		<u> </u>			¹ Indicators of hydric soil and wetland	hydrology must be
9.		<u> </u>			present, unless disturbed of problem	auc
10.		%			Definitions of Vegetation Stra	ta:
11.		%			Tree – Woody plants 3 in (7.6 cm) or more in
12.		%			diameter at breast height (DBH), r	egardless of height.
		95 % =	= Total Cover		Sapling/Shrub – Woody plants le	ss than 3 in. DBH
Woody Vine Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)				and greater than 5.20 it (1 iii) tail.	
1		%			Herb – All herbaceous (non-wood	y) plants, regardless
2		%			or size, and woody plants less that	11 0.20 It tall.
3		<u>%</u>			Woody vine – All woody vines gre	eater than 3.28 ft in
4		%		<u> </u>		
		=	 Total Cover 		Hydrophytic Vegetation Present	? 🛛 Yes 🗌 No

Remarks (include photo numbers here or on a separate sheet): The Rapid Test for Hydrophytic Vegetation confirmed hydrophytic vegetation.

Profile Description: (Describe to the de	epth needed to document the indicator or confirm Redox Features	the absence of indicators.)
(inches) Color (moist) %	$\frac{1}{10000000000000000000000000000000000$	 Texture Remarks
0-8 10YR 5/4 100		Sand
Type: C=Concentration, D=Depletion, F	RM=Reduced Matrix, MS=Masked Sand Grains	² Location: PL=Pore Lining, M=Matrix
lydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Dark Surface (S7) (LRR R, MLRA 149B)	2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2)	Polyvalue Below Surface (S8) (MLRA 147, 148) 🔲 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)
] Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1) (LRR K, L)	Dark Surface (S7) (LRR K, L)
Stratified Layers (A5)	Loamy Gleyed Matrix (F2)	Polyvalue Below Surface (S8) (LRR, K, L)
Depleted Below Dark Surface (A11)	Depleted Matrix (F3)	Thin Dark Surface (S9) (LRR, K, L)
Thick Dark Surface (A12)	Redox Dark Surface (F6)	☐ Iron-Manganese Masses (F12) (LRR, K, L)
☐ Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	Piedmont Floodplain Soils (F19) (MLRA 1498
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Sandy Redox (S5)		Red Parent Material (F21)
🗌 Stripped Matrix (S6)		Very Shallow Dark Surface (TF12)
		Other (Explain in Remarks)
³ Indicators of hydrophytic vegetation and	wetland hydrology must be present, unless disturbed	or problematic
Restrictive Layer (if observed):		Hydric Soil Present?
Гуре: <u>Rock</u>	Depth (inches): 8	🗌 Yes 🖾 No
Remarks: No indicators of hydric soil we	ere present at the time of the site visit. Rock was enco	untered at eight inches below the soil surface.

Project/Site: Marshall Mega Si	te		City/County:	Marshall Town	ship	Sampling Date: 9/15/21				
Applicant/Owner: Marshall Arc	a Economic Dovol	opmont Alliance	Christen and a state: MI Compliant Departs							
Applicant/Owner. <u>Interstall Are</u>		opment Allanci	e Sootii		. <u>IVII</u>					
Landform (billolong, torrage, etc.)				n, rownsnip, Ra	ng): Canagy					
Landform (nillslope, terrace, etc.)	Hillslope	t. 10.00010	Local relief (con	cave, convex, no	one): <u>Concave</u>	<u>e</u> Slope (%): <u>5</u>				
	La	42.26013		Long: <u>-85.014</u>	00					
Soil Map Unit Name: C	Ishtemo sandy loa	m, 18 to 35 per	cent slopes		_ NWI Classifie	cation: N/A				
Are climate/hydrologic conditions	on the site typical	for this time of	year? 🛛 Ye	es 🗌 No (/	lf no, explain in	Remarks)				
Vege Significantly Disturbed?	etation Soil	Hydrology	Are "No	rmal Circumstan	ces" present?	X Yes 🗆 No				
Significantly Disturbed?			(1	f needed, explain a	ny answers in Rei	marks)				
						·				
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.										
	Yes	No Re	emarks: Wetlan	d 4 (W-4) is a Pal	lustrine Emerge	ent (PEM) wetland.				
Hydrophytic Vegetation Present?										
Hydric Soil Present?										
vvetland Hydrology Present?										
Is the Sampled Area within a W	/etland?									
HYDROLOGY										
Wetland Hydrology Indicators:					Secondary Inc	dicators (minimum of two required)				
Primary Indicators (minimum of c	one required; check	<u>(all that apply)</u>			Surface So	il Cracks (B6)				
Surface Water (A1)		Water-Stained	Leaves (B9)		🗌 Drainage F	Patterns (B10)				
☐ High Water Table (A2)		Aquatic Fauna	ı (B13)		🗌 Moss Trim	Lines (B16)				
Saturation (A3)		Marl Deposits	(B15)		Dry-Seaso	n Water Table (C2)				
Water Marks (B1)		Hydrogen Sulf	ide Odor (C1)		🗌 Crayfish Bu	urrows (C8)				
Sediment Deposits (B2)		Oxidized Rhiz	ospheres on Liv	ing Roots (C3)	Saturation	Visible on Aerial Imagery (C9)				
Drift Deposits (B3)		Presence of R	educed Iron (C4	-)	Stunted or	Stressed Plants (D1)				
☐ Algal Mat or Crust (B4)		Recent Iron R	eduction in Tilleo	d Soils (C6)	Geomorphi	c Position (D2)				
Iron Deposits (B5)		Thin Muck Su	face (C7)		Shallow Ac	juitard (D3)				
Inundation Visible on Aerial In	nagery (B7)	Other (Explain	in Remarks)	in Remarks)						
Sparsely Vegetated Concave	Surface (B8)				FAC-Neutr	al Test (D5)				
Field Observations:	Ves No	Depth	Describe Reco	rded Data (strear	m gauge, monit	oring well, aerial photos, previous				
Surface Water Present?		(inches):	inspections, et	c.), if available:						
Water Table Present?		16								
Saturation Present?		10								
(includes capillary fringe)		10								
Wetland Hydrology Present?										
Remarks: Saturation (A3), Satur	ation Visible on Ae	erial Imagery (C	9), and FAC-Ne	utral Test (D5) co	onfirmed wetlan	d hydrology.				

Sampling Point: SP-9

Tree Stratum	(Plot size: 30 ft. x 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1	(* * * * * * * * <u>- * * * * * * * *</u>)	%			that are OBL, FACW, or FAC:	3 (A)
2.		<u> </u>		·	Total Number of Dominant	
3.		%			Species Across All Strata:	<u> </u>
4.		%			Percent of Dominant Species	
5		%			that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6		%			Prevalence Index worksheet:	
7		%			Total % Cover of:	Multiply by:
		0 % =	 Total Cover 			
Sapling/Shrub Stratum	(Plot size: 15 ft. x 15 ft.)				OBL species%	x 1 = <u>0</u>
<u> </u>	(0/			FACW species%	x 2 = <u>0</u>
1 2				·	FAC species%	x 3 =
3		<u> </u>			FACU species%	x 4 =
4.		%			UPL species %	x 5 = 0
5.		%			Column Totals: 0 %	(A) 0 (B)
6.		%				
7		%			Prevalence Index = B/A =	
		<u> 0 % </u> =	 Total Cover 		Hydrophytic Vegetation Indica	ators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				☑ 1 - Rapid Test for Hydrophyt	tic Vegetation
1. Phalaris arundinacea		40 %	Y	FACW	2 - Dominance Test is >50%)
2. Spartina pectinate		20 %	Y	FACW	□	1
3. Lythrum salicaria		20 %	Y	OBL		De ¹ (Drovide
4. Eupatorium perfoliatum		10 %	<u>N</u>	FACW	supporting data in Remarks	or on a separate
5. <u>Eutrochium purpureum</u>		5 %	<u> </u>	FAC	sheet)	
6. <u>Campanulastrum ameri</u>	canum	<u> </u>	<u> </u>	FAC	Problematic Hydrophytic Ve	getation ¹ (Explain)
8		<u> </u>			¹ Indicators of hydric soil and wetland	d hydrology must be
9.		<u> </u>			present, unless disturbed or problem	latic
10.		%			Definitions of Vegetation Stra	ta:
11.		%			Trop Woody plants 3 in (7.6 cm) or more in
12.		%			diameter at breast height (DBH), r	regardless of height.
		97 % =	Total Cover		Sapling/Shrub – Woody plants le	ess than 3 in DBH
Woody Vine Stratum	(Plot size: 30 ft. x 30 ft.)				and greater than 3.28 ft (1 m) tall.	
1	· · · · · · · · · · · · · · · · · · ·	0/_			Herb – All herbaceous (non-wood	lv) plants, regardless
1 2		<u> </u>			of size, and woody plants less that	in 3.28 ft tall.
3.		%			Woody vine – All woody vines an	eater than 3.28 ft in
4.		%			height.	
		0 % =	Total Cover		Hydrophytic Vegetation Present	? ⊠ Yes □ No

Remarks *(include photo numbers here or on a separate sheet)*: The Rapid Test for Hydrophytic Vegetation confirmed hydrophytic vegetation at the time of the site visit.

Profile Desc	cription: (Describe to	o the dep	oth needed to docur	nent the	indicator or	confirm t	he absence of indicators.)			
Depth		0/		Redox F		1 2				
(inches)			Color (moist)		lype'	Loc ²		Remarks		
0-16	<u>10YR 2/1</u>	95	<u>5YR 4/4</u>	5	<u> </u>	M	Sandy Clay Loam			
16-20	10YR 2/1	83	<u>10Y 6/1</u>	15		M	Sandy Clay Loam			
			10GY 4/1		<u> </u>	IVI				
			<u> </u>							
			· · · · · · · · · · · · · · · · · · ·							
			·							
						. <u></u>				
					·					
			·							
¹ Type: C=Co	oncentration, D=Depl	etion, RN	I=Reduced Matrix, M	S=Maske	ed Sand Grai	ns	² Location: PL=Pore Linir	ng, M=Matrix		
Hydric Soil	Indicators:						Indicators for Problematic Hyd	dric Soils ³ :		
🗌 Histosol (A1)		Dark Surface (S7	') (LRR F	R, MLRA 149	B)	2 cm Muck (A10) (LRR K, L,	MLRA 149B)		
🗌 Histic Epi	pedon (A2)		Polyvalue Below	Surface	(S8) (MLRA	147, 148)	🗌 Coast Prairie Redox (A16) (L	.RR K, L, R)		
□ Black Histic (A3) □ Thin Dark Surface (S9) (LRR R. MLRA 149B)						\Box 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)				
□ Hvdrogen Sulfide (A4) □ Loamy Mucky Mineral (F1) (LRR K. L)							Dark Surface (S7) (LRR K, L	_)		
□ Stratified Lavers (A5) □ Loamy Gleved Matrix (F2)						☐ Polvvalue Below Surface (S8) 3) (LRR. K. L)			
$\Box \text{ Depleted Below Dark Surface (A11)} \qquad \Box \text{ Depleted Matrix (F3)}$						☐ Thin Dark Surface (S9) (LRR	2. K . L)			
$\Box \text{ Depicted Below Dark Surface (A12)} \qquad \Box \text{ Depicted Matrix (13)}$						□ Iron-Manganese Masses (E1	2) (IRR K I)			
Candy Mi	icky Mineral (S1)			urface (F	7)		Piedmont Floodplain Soils (F	(ERR , R , E)		
	oved Matrix (S4)				')		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
				ns (F0)			\square Red Parent Material (F21)			
							\square Very Shallow Dark Surface (TE12)			
	Matrix (56)						Very Shallow Dark Surface (TF12)			
							U Other (Explain in Remarks)			
³ Indicators of	f hydrophytic vegetat	ion and w	etland hydrology mu	st be pre	sent, unless o	disturbed o	r problematic			
Restrictive I	Layer (if observed):						Hydric Soil Present?			
Туре:			Depth (inches):				🛛 Yes 🗌 No			
Remarks: F	Redox Dark Surface (F6) confir	med hydric soils.							

Project/Site: Marshall Maga S	ito		City/County:	Marshall Township) Sampling Date: 0/15/21					
			City/County.	City/County Calloun County Sampling Date						
Applicant/Owner: Marshall Are	a Economic De	evelopment Allia	ance	State:	MI Sampling Point: SP-10					
Investigator(s): <u>Burns & McDo</u>	onnell (EJM & A	.0)	Secti	on, Township, Range	:: S33 T2S R6W					
Landform (hillslope, terrace, etc.) <u>Hillslope</u>		Local relief (cor	ncave, convex, none):	Concave Slope (%): 20					
Subregion (LRR or MLRA):		Lat: <u>42.260</u> 2	192	Long: <u>-85.014657</u>	Datum: NAD83					
Soil Map Unit Name:	Oshtemo sandy	/ loam, 18 to 35	percent slopes	N	IWI Classification: <u>N/A</u>					
Are climate/hydrologic conditions	s on the site typ	ical for this time	e of year? 🛛 🛛 Y	es 🗌 No (If no	o, explain in Remarks)					
Veg	etation Soil	Hydrology	A "N I							
Significantly Disturbed?			Are "No	ormal Circumstances	' present? 🛛 Yes 📋 No					
Naturally Problematic?			(lf needed, explain any ai	nswers in Remarks)					
SUMMARY OF FINDINGS - A	Attach site ma	ap showing s	sampling point l	ocations, transect	ts, important features, etc.					
	Ye	es No	Remarks: Sample	e Plot (SP)-10 is locat	ted adjacent to Wetland (W)-4.					
Hydrophytic Vegetation Present	? [
Hydric Soil Present?	C									
Wetland Hydrology Present?	Ľ									
Is the Sampled Area within a V	Vetland?									
IYDROLOGY										
Wetland Hydrology Indicators	:			Se	econdary Indicators (minimum of two required)					
Primary Indicators (minimum of a	one re <u>quired; cł</u>	neck a <u>ll that app</u>	olv)	П	Surface Soil Cracks (B6)					
□ Surface Water (A1)		□ Water-Stai	ned Leaves (B9)		Drainage Patterns (B10)					
High Water Table (A2)		Aquatic Fa	una (B13)		Mose Trim Lines (B16)					
\square Saturation (A3)			sits (B15)		Dry Season Water Table (C2)					
□ Water Marks (B1)			Sulfide Odor (C1)		Crowfieb Burrowe (C8)					
Sediment Deposits (B2)			Phizospheres on Liv	ing Roots (C3)	Saturation Visible on Aerial Imagery (CQ)					
\square Drift Deposits (B3)			of Reduced Iron (Ca	1) \square	Stunted or Stressed Plants (D1)					
□ Algal Mat or Crust (B4)			n Reduction in Tille	™ ⊔ d Soils (C6) □	\Box Stunted or Stressed Plants (D1)					
\square Iron Denosite (R5)			Surface (C7)							
	magery (R7)		Jain in Remarks)		Snallow Aquilard (D3)					
Sparsely Vegetated Concave	Surface (B8)				Microtopographic Relief (D4)					
		Dawth								
Field Observations:	Yes No	Depth (inches):	Describe Reco inspections, et	orded Data (stream ga c.), if available:	auge, monitoring well, aerial photos, previous					
Surface Water Present?				<i>,</i> -						
Water Table Present?										
Saturation Present? (includes capillary fringe)										
Wetland Hydrology Present?										
Remarks: No indicators of wetla	nd hvdrology w	ere present at t	the time of the site	/isit.						

Sampling Point: SP-10

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 Prunus serotina		20 %	Y	FACU	that are OBL, FACW, or FAC:(A)
2.		<u> </u>	<u> </u>		Total Number of Dominant
3.		%			Species Across All Strata: 7 (B)
4.		%			Percent of Dominant Species
5.		%			that are OBL, FACW, or FAC:(A/B)
6		%			Prevalence Index worksheet:
7		%			
		20 % =	Total Cover		I otal % Cover of: Multiply by:
Sonling/Shruh Stratum	(Diotaiza: 15 ft x 15 ft)				OBL species% x 1 =0
Sapling/Shrub Stratum	(PIOLSIZE. <u>15 IL X 15 IL</u>)				FACW species% x 2 =0
1. Salix nigra		10 %	<u> </u>	OBL	FAC species % x 3 = 0
2. <u>Acer saccharum</u>		10 %	<u> </u>	FACU	FACU species $\% x 4 = 0$
3		<u>%</u>			
4		<u>%</u>			OPL species% x 5 =
56		<u> </u>			Column Totals: <u>0</u> % (A) <u>0</u> (B)
0 7		<u> </u>			Prevalence Index = B/A =
· ·		20 % =	Total Cover		Hudronhutia Vagatatian Indiastora
					Hydrophytic vegetation indicators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				☐ 1 - Rapid Test for Hydrophytic Vegetation
1. Bromus inermis		60 %	Y	UPL	☐ 2 - Dominance Test is >50%
2. Solidago altissima		30 %	<u>Y</u>	FACU	□ 3 - Prevalence Index is $\leq 3.0^{1}$
3. Daucus carota		5 %	<u>N</u>	UPL	4 - Morphological Adaptations ¹ (Provide
4. <u>Symphyotrichum la</u>	nceolatum	2 %	<u> </u>	FACW	supporting data in Remarks or on a separate
э. 6		<u> </u>			
0 7		<u>/0</u>			Problematic Hydrophytic Vegetation ¹ (Explain)
8		<u> </u>			¹ Indicators of hydric soil and wetland hydrology must be
9.		%			
10.		%			Definitions of Vegetation Strata:
11.		%			Trop Woody plants 3 in (7.6 cm) or more in
12.		%			diameter at breast height (DBH), regardless of height.
		97 % =	Total Cover		Sanling/Shrub - Woody plants less than 3 in DBH
Woody Vine Stratum	(Plot size: 30 ft. x 30 ft.)				and greater than 3.28 ft (1 m) tall.
1 Rubus alloheniens	is,	30 %	Y	FACU	Herb – All herbaceous (non-woody) plants, regardless
2 Vitis riparia	0	20 %	Y	FAC	of size, and woody plants less than 3.28 ft tall.
3. Rosa multiflora		10 %	N	FACU	Woody vine – All woody vines greater than 3.28 ft in
4.		%			height.
		60 % =	Total Cover		
					Hydrophytic vegetation Present? I Yes 🛛 No

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.

Denth	Matrix		Redox Fe	atures	u					
(inches)	Color (moist) %	6 Color (moist)	%	Type ¹	Loc ²	- Texture	Remarks			
0-5	10YR 5/2 7	0				Sandy Clay	-			
	10YR 7/2 3	0					Sand			
¹ Type: C=Co	ncentration, D=Depletion,	, RM=Reduced Matrix, N	S=Maske	ed Sand Grai	IS	² Location: PL=Pore Linir	ng, M=Matrix			
Hydric Soil I	ndicators:					Indicators for Problematic Hyd	dric Soils ³ :			
Histosol (A	\1)	Dark Surface (S	7) (LRR F	R, MLRA 149	3)	2 cm Muck (A10) (LRR K, L,	MLRA 149B)			
Histic Epip	bedon (A2)	Polyvalue Below	Surface	(S8) (MLRA ′	47, 148)	🗌 Coast Prairie Redox (A16) (L	.RR K, L, R)			
Black Histic (A3)			e (S9) (L	RR R, MLRA	149B)	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)				
Hydrogen	Sulfide (A4)	🗌 Loamy Mucky M	ineral (F1) (LRR K, L)		🔲 Dark Surface (S7) (LRR K, L	.)			
□ Stratified Layers (A5) □ Loamy Gleyed Matrix (F2)					Polyvalue Below Surface (S8	B) (LRR, K, L)				
Depleted Below Dark Surface (A11)					☐ Thin Dark Surface (S9) (LRR	R, K, L)				
Thick Dark Surface (A12) Redox Dark Surface (F6)						Iron-Manganese Masses (F1	2) (LRR, K, L)			
🗌 Sandy Mu	Sandy Mucky Mineral (S1)					Piedmont Floodplain Soils (F19) (MLRA 149B)				
Sandy Gle	eyed Matrix (S4)	Redox Depression	ons (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 149B)				
Sandy Re	dox (S5)					Red Parent Material (F21)				
Stripped N	/atrix (S6)					Very Shallow Dark Surface (TF12)				
						Other (Explain in Remarks)				
³ Indicators of	hydrophytic vegetation ar	nd wetland hydrology mu	st be pre	sent, unless o	isturbed o	r problematic				
Restrictive L	ayer (if observed):					Hydric Soil Present?				
Type: R	ock	Depth (inches):	5			🗌 Yes 🛛 No				
Remarks: No	o indicators of hydric soil	were present at the time	of the site	e visit. Rock v	as encou	ntered at five inches below the soi	l surface.			

Project/Site: Marshall Mega Sit	'e		City/County:	Marshall Township	p	Sampling Date: 9/1	6/21		
Applicant/Owner: Marshall Are	a Economic Dovo	loomont Allia		State:	`	Sampling Date:	SD 11		
Investigator(s): Burns & McDo	nnell (F.IM & AO)	Iopment Alla	Section	State.	<u>- IVII</u> S27 T25	_ Sampling Follit.	3F-11		
Landform (hillslope terrace etc.)	Flat in denres	sion	Local relief (con	ucave convex none)). None	Slope (%):	0		
Subregion (I RR or MI RA):		at: 12 2655		Long: _84 99903	7. <u>None</u>	Datum: NAD83			
	Le	11. <u>42.2000</u>		Long. <u>-04.999032</u>		DatumNAD05			
Ana alimenta (hudrala sia conditiona				I					
Are climate/nydrologic conditions	on the site typical		of year?		o, explain in	Remarks)			
Significantly Disturbed?	atation Soil ⊐ □	Hydrology	Are "No	rmal Circumstances	" present?	🛛 Yes 🗌 No			
Naturally Problematic?			(L	f needed, explain any a	answers in Rer	narks)			
SUMMARY OF FINDINGS – A	SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
	Yes	No	Remarks: Wetland	d 5 (W-5) is a Palust	trine Emerge	ent (PEM)/Palustrine S	Scrub-Shrub		
Hydrophytic Vegetation Present?	\boxtimes		(PSS) wetland.						
Hydric Soil Present?									
Wetland Hydrology Present?	\boxtimes								
Is the Sampled Area within a W	etland?								
HYDROLOGY		ł							
Wetland Hydrology Indicators:				Si	econdary Inc	dicators (minimum of a	two required)		
Primary Indicators (minimum of o	ne <u>required; chec</u>	k <u>all that app</u>	ly)		1 Surface So	il Cracks (B6)	<u> </u>		
Surface Water (A1)] Water-Stair	ned Leaves (B9)		1 Drainage P	Patterns (B10)			
☐ High Water Table (A2)] Aquatic Fa	una (B13)		1 Moss Trim	l ines (B16)			
Saturation (A3)] Marl Depos	sits (B15)		l Dry-Seasor	n Water Table (C2)			
☐ Water Marks (B1)] Hydrogen S	Sulfide Odor (C1)		l Craγfish Βι	urrows (C8)			
Sediment Deposits (B2)		Oxidized RI	hizospheres on Livi	ing Roots (C3)	Saturation	Visible on Aerial Imac	aery (C9)		
Drift Deposits (B3)] Presence of	of Reduced Iron (C4	Reduced Iron (C4) Stunted or Stressed Plants (D1)					
Algal Mat or Crust (B4)		Recent Iron	Reduction in Tilled	Reduction in Tilled Soils (C6)					
Iron Deposits (B5)] Thin Muck \$	Surface (C7)	face (C7)					
Inundation Visible on Aerial Im	nagery (B7)] Other (Expl	lain in Remarks)] Microtopog	raphic Relief (D4)			
Sparsely Vegetated Concave	Surface (B8)			\boxtimes	FAC-Neutra	al Test (D5)			
Field Observations	Mar No	Depth	Describe Reco	orded Data (stream g	auge, monito	oring well, aerial phote	os, previous		
Field Ubservations:		<u>(inches):</u>	inspections, etc	c.), if available:					
Surface Water Present?									
Saturation Present?		18							
(includes capillary fringe)		10							
Wetland Hydrology Present?									
Remarks: Saturation Visible on A	verial Imagery (CS), Geomorph	nic Position (D2), ar	nd FAC-Neutral Test	(D5) confirm	ned wetland hydrolog	у.		

Sampling Point: SP-11

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species	
1.		%			that are OBL, FACW, or FAC:	<u> 6 (</u> A)
2.		%			Total Number of Dominant	
3.		%			Species Across All Strata:	<u> 6 (</u> B)
4.		%			Percent of Dominant Species	
5		%		. <u> </u>	that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6		%			Prevalence Index worksheet	
7		%				
		0 %	= Total Cover		lotal % Cover of:	Multiply by:
					OBL species%	x 1 = <u>0</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft. x 15 ft.</u>)				FACW species %	x 2 = 0
1. Cornus amomum		20 %	Y	FACW	FAC species %	$x_3 = 0$
2. Sambucus nigra		15 %	Y	FACW		× 4 = 0
3		%			FACU species%	x 4 = <u> </u>
4		%			UPL species%	x 5 = <u>0</u>
5		%			Column Totals: 0%	(A) <u>0</u> (B)
6		%	. <u> </u>	. <u> </u>	Prevalence Index = B/A =	
7		%				
		35 %	= Total Cover		Hydrophytic Vegetation Indica	tors:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				1 - Rapid Test for Hydrophyti	c Vegetation
1. Phalaris arundinace	а	40 %	Y	FACW	☑ 2 - Dominance Test is >50%	
2. Symphyotrichum lan	nceolatum	25 %	Y	FACW	\square 3 - Prevalence Index is ≤3.0 ¹	
3. Carex vulpinoidea		20 %	Y	OBL		
4. Rubus occidentalis		5 %	<u>N</u>	UPL	supporting data in Remarks o	r on a separate
5. Eutrochium purpure	um	2 %	<u>N</u>	FAC	sheet)	
6		%			Problematic Hydrophytic Veg	etation ¹ (Explain)
7		%_			¹ Indicators of hydric soil and wetland	hydrology must be
8					present, unless disturbed or problema	atic
9		%	<u> </u>	<u> </u>	Definitions of Vegetation Strat	a'
10		%			Deminions of Vegetation Ottat	u.
11					Tree – Woody plants 3 in. (7.6 cm)	or more in
12.				·	diameter at breast height (DBH), re	egardiess of height.
Woody Vine Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	92 % =	= Total Cover		Sapling/Shrub – Woody plants les and greater than 3.28 ft (1 m) tall.	s than 3 in. DBH
1 Vitis rinaria		20 %	V	FAC	Herb – All herbaceous (non-woody) plants, regardless
2			<u> </u>		of size, and woody plants less than	3.28 ft tall.
3		<u> </u>			Woody vine – All woody vines are	ater than 3 28 ft in
4.		<u> </u>			height.	
		20 % -	= Total Covor			
					Hydrophytic Vegetation Present?	? ⊠ Yes 🗌 No

Remarks (include photo numbers here or on a separate sheet): The Dominance Test confirmed hydrophytic vegetation at the time of the site visit.

Profile Desc	cription: (<i>Describe t</i> e	o the de	pth needed to docur	nent the Redox F	indicator or	confirm ti	he absence of indicators.)			
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	L oc ²	– Texture	Remarks		
0-2	10YR 2/1	100					Silty Clay Loam	Romanto		
2-6	10YR 2/1	90	5YR 3/4	10	C	М	Silty Clay Loam			
6-20	10YR 2/1	83	5YR 3/4	5	С	М	Silty Clay Loam	Gravel present		
			10YR 5/1	10	D	М				
			N 2.5/0	2	D	М				
	- <u> </u>									
							<u> </u>	·		
								·		
					·					
			<u> </u>							
¹ Type: C=Co	oncentration, D=Depl	etion, RI	M=Reduced Matrix, M	S=Maske	ed Sand Grair	IS	² Location: PL=Pore Lin	ing, M=Matrix		
Hydric Soil	Indicators:						Indicators for Problematic Hy	dric Soils ³ :		
Histosol (A1) Dark Surface (S7) (LRR R, MLRA 149B)							2 cm Muck (A10) (LRR K, L	, MLRA 149B)		
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148)							🗌 Coast Prairie Redox (A16) (LRR K, L, R)		
🗌 Black His	tic (A3)		Thin Dark Surfac	e (S9) (L	RR R, MLRA	149B)	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
☐ Hydrogen Sulfide (A4) ☐ Loamy Mucky Mineral (F1) (LRR K, L)							Dark Surface (S7) (LRR K,	L)		
Stratified	Layers (A5)		Loamy Gleyed M	atrix (F2))		Polyvalue Below Surface (S	8) (LRR, K, L)		
Depleted Below Dark Surface (A11)							Thin Dark Surface (S9) (LR	R, K, L)		
☐ Thick Dar	k Surface (A12)		🛛 Redox Dark Surf	ace (F6)			🔲 Iron-Manganese Masses (F	12) (LRR, K, L)		
🗌 Sandy Mu	ucky Mineral (S1)		Depleted Dark S	urface (F	7)		☐ Piedmont Floodplain Soils (F19) (MLRA 149B)		
Sandy Gl	eyed Matrix (S4)		Redox Depressio	ons (F8)			Mesic Spodic (TA6) (MLRA	144A, 145, 149B)		
Sandy Re	edox (S5)						Red Parent Material (F21)			
Stripped I	Matrix (S6)						Very Shallow Dark Surface (TF12)			
							Other (Explain in Remarks)			
³ Indicators of	f hydrophytic vegetati	ion and v	vetland hydrology mu	st be pres	sent, unless d	isturbed o	r problematic			
Restrictive I	Layer (if observed):						Hydric Soil Present?			
Туре:			Depth (inches):				🛛 Yes 🔲 No			
Remarks: F	Redox Dark Surface (F6) and I	Depleted Dark Surfac	e (F7) coi	nfirmed hydrio	c soils.				

Draiaat/Sita: Maraball Maga S	lito			City	(County:	Marshall Towr	nship		Sampling Data: 0/16/21	
				City						
Applicant/Owner: Marshall Ar	ea Econon	nic Deve	lopment Allia	ance		Stat	e: <u>MI</u>		Sampling Point: SF	-12
Investigator(s): <u>Burns & McD</u>	onnell (EJI	√ & AO)			Sectio	n, Township, Ra	ange:	S27 T2	2S R6W	
Landform (hillslope, terrace, etc	.) <u>Flat</u>			Local	relief (cond	cave, convex, no	one): <u>I</u>	None	Slope (%):)
Subregion (LRR or MLRA): <u>L</u>		La	at: <u>42.2656</u>	32		Long: <u>-84.99</u>	919		Datum: NAD83	
Soil Map Unit Name:	Oshtemo s	sandy loa	am, 12 to 18	percent s	slopes		NWI	Classifi	ication: <u>N/A</u>	
Are climate/hydrologic condition	s on the si ^r	te typical	l for this time	of year?	🛛 Ye	s 🗌 No	(If no, ex	oplain in	n Remarks)	
Veç	jetation	Soil	Hydrology		- «• •			.0		
Significantly Disturbed?					Are "Nor	mal Circumstan	ices" pre	sent?	🛛 Yes 📋 No	
Naturally Problematic?					(It	needed, explain a	any answe	∍rs in Re	emarks)	
SUMMARY OF FINDINGS -	Attach si	te map	showing s	ampling	g point lo	cations, trans	sects, i	mport	ant features, etc.	
		Yes	No	Remark	s : Sample	Plot (SP)-12 is	located a	adjacer	nt to Wetland (W)-5.	
Hydrophytic Vegetation Present	?		\boxtimes							
Hydric Soil Present?			\boxtimes							
Wetland Hydrology Present?			\boxtimes							
Is the Sampled Area within a V	Netland?		\boxtimes							
HYDROLOGY										
Wetland Hydrology Indicators							Secon	idary In	dicators (minimum of two	required)
Primary Indicators (minimum of	one requir	ed; checi	<u>k all that app</u>	<u>oly)</u>			□ Sur	face So	oil Cracks (B6)	
Surface Water (A1)] Water-Stai	ned Leav	es (B9)		— ∏ Dra	ainage [Patterns (B10)	
☐ High Water Table (A2)			- 1 Aquatic Fa	una (B13)			ss Trim	Lines (R16)	
\square Saturation (A3)			1 Marl Depo	sits (B15)	/			/-Seasc	on Water Table (C2)	
□ Water Marks (B1)			1 Hvdrogen	Sulfide Or	dor (C1)			-00u00	urrowe (CR)	
\Box Sediment Deposits (B2)] Oxidized R	hizosphe	res on Livi	na Roots (C3)		turation	Visible on Aerial Imageny	(CQ)
\square Drift Deposits (B3)			Presence (of Reduce	Reduced Iron (C4)			Stunted or Stressed Plants (D1)		
\square Algal Mat or Crust (B4)			Recent Iro	n Reducti	Reduction in Tilled Soils (C6)			\Box Stunted of Stressed Plants (D1)		
\square Iron Deposits (B5)] Thin Muck	Surface (
	magery (R	7) [] Other (Evr	lain in Re	$\frac{1}{2} \sum_{i=1}^{2} \frac{1}{2} \sum_{i=1}^{2} \frac{1}$			Shallow Aquitard (D3)		
Sparsely Vegetated Concave	Surface (ィ) L B8)			ain in Remarks)			Microtopographic Relief (D4)		
		50)	Danth					J-ineuti		
Field Observations:	Yes	No	Depth (inches):	Desc inspe	cribe Recor ections. etc	ded Data (strea). if available:	im gauge	e, moni	toring well, aerial photos, p	previous
Surface Water Present?		\boxtimes	·			.,,				
Water Table Present?		\boxtimes								
Saturation Present?										
(includes capillary fringe)	_									
Wetland Hydrology Present?										
Remarks: No indicators of wetla	and hydrolo	ogy were	present at t	he time of	f the site vi	sit.				

Sampling Point: SP-12

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 Prunus serotina		5 %	Y	FACU	that are OBL, FACW, or FAC:	(A)
2.		%	<u> </u>		Total Number of Dominant	
3.		%	·	·	Species Across All Strata:	<u> 5 (</u> B)
4.		%			Percent of Dominant Species	
5.		%			that are OBL, FACW, or FAC:	<u> </u>
6.		%			Prevalence Index worksheet:	
7		%				
		<u> 5 % </u> =	Total Cover		Iotal % Cover of:	Multiply by:
Sanling/Shrub Stratum	(Plot size: 15 ft x 15 ft)				OBL species%	x 1 = <u>0</u>
Saping/Shiub Shatum	(FIOL SIZE. <u>15 IL X 15 IL</u>)				FACW species%	x 2 = <u>0</u>
1. Juglans nigra		2 %	<u> </u>	FACU	FAC species %	x 3 = 0
2		%			FACU species %	x 4 = 0
3					LIPI species %	x 5 - 0
4		%				x = 0
6		<u> </u>			Column Totals: <u>0</u> %	(A) <u> </u>
7.		%			Prevalence Index = B/A =	
		2 % =	Total Cover		Hydrophytic Vegetation Indica	tors:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				1 - Rapid Test for Hydrophyti	c Vegetation
1. Rubus occidentalis		25 %	Y	UPL	\square 2 - Dominance Test is >50%	-
2. Phalaris arundinacea		20 %	Y	FACW		
3. Amaranthus retroflexus		20 %	Y	FACU		
4. Solidago altissima		5 %	Ν	FACU	4 - Morphological Adaptation	s ¹ (Provide
5. Urtica dioica		1 %	N	FAC	sheet)	
6		%			Problematic Hydrophytic Veg	jetation ¹ (Explain)
7		%			¹ Indicators of hydric soil and wetland	l hydrology must be
8		%	<u> </u>	<u> </u>	present, unless disturbed or problem	atic
9		%			Definitions of Vagatation Strat	
10		%	·	<u> </u>	Demnitions of Vegetation Strat	.a.
11		%			Tree – Woody plants 3 in. (7.6 cm)) or more in
12.					diameter at breast height (DBH), fo	egardiess of height.
Woody Vine Stratum	(Plot size: 30 ft. x 30 ft.)	97%	- Total Cover		Sapling/Shrub – Woody plants les and greater than 3.28 ft (1 m) tall.	ss than 3 in. DBH
1 Vitis riparia	(5 %	V	EAC	Herb – All herbaceous (non-wood)	/) plants regardless
1. <u>Vilis riparia</u> 2		<u> </u>	<u> </u>		of size, and woody plants less than	n 3.28 ft tall.
3.		<u> </u>			Woody vine – All woody vines are	ater than 3.28 ft in
4.		%			height.	
		5 % =	Total Cover			
					Hydrophytic Vegetation Present	′∐Yes ⊠No

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.
Color (moist) % Type! Loc ² Texture Remarks 0-12 10YR 4/2 80	Depth	Matrix	, R	edox Features	i	,	
0-12 10YR 4/2 80 Sandy Clay Leam 10YR 7/2 20 Sandy 10YR 7/2 20 Sandy 10YR 7/2 20 Sandy Sandy Sandy Clay Leam Sandy Sandy Sandy Sandy "Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains PL=Pore Lining, M=Matrix Hydrogen Dark Surface (S7) (LRR R, MLRA 149B) Coast Praine Redux (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) Polyvalue Below Surface (S8) (LRR K, L, R) Dark Surface (S1) (LRR K, L, R) Statified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S1) (LRR K, L) Standy Mucky Mineral (S1) </th <th>(inches)</th> <th>Color (moist)</th> <th>% Color (moist)</th> <th>% T</th> <th>vpe¹ Loc²</th> <th> Texture</th> <th>Remarks</th>	(inches)	Color (moist)	% Color (moist)	% T	vpe ¹ Loc ²	 Texture	Remarks
10YR 7/2 20 Sand Image: Sand I	0-12	10YR 4/2	80			Sandy Clay Loam	
Image: Suffact (A3) Image: Suffact (A1) Depleted Matrix (F3)		10YR 7/2	20				Sand
Image: Stratified Layers (A3) □ <							
Image: Solution of the start of the st							
Image: Section is a section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section is a section in the section is a section in the section in the section in the section in the section is a section in the section is a section in the section in the section in the section is a section in the sectin the sectin the sectin the section in the section in the sectio					·		
Image: Section in the system of the site visit. Compacted clay was encountered at 12 inches below the soil sufface Image: Section in the soil was encountered at 12 inches below the soil sufface Image: Section in the soil was encountered at 12 inches below the soil sufface Image: Section in the soil was encountered at 12 inches below the soil sufface Image: Section in the soil was encountered at 12 inches below the soil sufface Image: Section in the soil was encountered at 12 inches below the soil sufface Image: Section in the soil was encountered at 12 inches below the soil sufface Image: Section in the soil sufface Image: Section in the soil sufface Image: Section in the soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil sufface Image: Section in the soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil sufface							
introduction introduction <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ² Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histic Epipedon (A2) Polyvalue Below Surface (S7) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Thick Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Solis (F19) (MLRA 144, 145, 149 Sandy Redox (S5) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149 Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Hydric Soil Present? Type: Compacted clay Depth (inches): _12 Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches b					,		<u> </u>
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ² Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) 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) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR, K, L) Thin Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR, K, L) Thick Dark Surface (A12) Redox Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149) Stripped Matrix (S6) Red Parent Material (F21) Qvery Shallow Dark Surface (TF12) Stripped Matrix (S6) Depth (inches): _12 Yes ⊠ No Hydric Soil Present? Type: Compacted clay Depth (inches): _12 Yes ⊠ No <td></td> <td></td> <td></td> <td></td> <td>·</td> <td></td> <td></td>					·		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ² Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histosol (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) 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, F) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR, K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR, K, L) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149) Sandy Redox (S5) Red Parent Material (F21) Wesic Spodic (TA6) (MLRA 144, 145, 149) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Hydric Soil Present? Type: Compacted clay Depth (inches): _12 Yes ⊠ No Remarks: No indica							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ² Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) 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, F) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR, K, L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR, K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR, K, L) Thic Dark Surface (A12) Redox Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144A, 145, 149) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) ³ Indicators of hydric vegetation and wetland hydrology must be present, unless disturbed or problematic Hydric Soil Present? Type: Compacted clay Depth (inches): _12 Yes ⊠ No							
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1) Dark Surface (S7) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) 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) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR, K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR, K, L) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149 Sandy Redox (S5) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149 Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Present? Type: Compacted clay Depth (inches): 12 Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay use encountered at 12 inches below the soil surface	¹ Type: C=C	oncentration, D=Depletion	on, RM=Reduced Matrix, M	S=Masked Sar	nd Grains	² Location: PL=Pore Lir	ning, M=Matrix
□ Histosol (A1) □ Dark Surface (S7) (LRR R, MLRA 149B) □ 2 cm Muck (A10) (LRR K, L, MLRA 149B) □ Histic Epipedon (A2) □ Polyvalue Below Surface (S8) (MLRA 147, 148) □ 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, F) □ Hydrogen Sulfide (A4) □ Loamy Mucky Mineral (F1) (LRR K, L) □ Dark Surface (S7) (LRR K, L) □ Stratified Layers (A5) □ Loamy Gleyed Matrix (F2) □ Polyvalue Below Surface (S8) (LRR, K, L) □ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thin Dark Surface (S7) (LRR K, L) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149 □ Sandy Redox (S5) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149 □ Stripped Matrix (S6) □ Other (Explain in Remarks) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Present? Type: Compacted clay Depth (inches): _12 □ Yes ⊠ No	Hydric Soil	Indicators:				Indicators for Problematic Hy	ydric Soils³:
□ Histic Epipedon (A2) □ Polyvalue Below Surface (S8) (MLRA 147, 148) □ 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) □ Hydrogen Sulfide (A4) □ Loamy Mucky Mineral (F1) (LRR K, L) □ Dark Surface (S7) (LRR K, L) □ Stratified Layers (A5) □ Loamy Gleyed Matrix (F2) □ Polyvalue Below Surface (S8) (LRR, K, L) □ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thin Dark Surface (S9) (LRR, K, L) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149 □ Sandy Redox (S5) □ Red Parent Material (F21) □ Other (Explain in Remarks) □ Stripped Matrix (S6) □ □ Other (Explain in Remarks) Other (Explain in Remarks) □ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or roblematic Hydric Soil	Histosol ((A1)	Dark Surface (S7) (LRR R, MLF	RA 149B)	🗌 2 cm Muck (A10) (LRR K, I	_, MLRA 149B)
□ Black Histic (A3) □ Thin Dark Surface (S9) (LRR R, MLRA 149B) □ 5 cm Mucky Peat or Peat (S3) (LRR K, L, F □ Hydrogen Sulfide (A4) □ Loamy Mucky Mineral (F1) (LRR K, L) □ Dark Surface (S7) (LRR K, L) □ Stratified Layers (A5) □ Loamy Gleyed Matrix (F2) □ Polyvalue Below Surface (S8) (LRR, K, L) □ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thin Dark Surface (S9) (LRR, K, L) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144, 145, 149) □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149) □ Stripped Matrix (S6) □ Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic ■ Mydric Soil Present? Type: Compacted clay □ Depth (inches): _12 □ Yes ⊠ No Remarks: No indicators of hydric soil wetlaw of the site visit. Compacted clay we encountered at 12 inches below the soil surface	Histic Ep	ipedon (A2)	Polyvalue Below	Surface (S8) (I	MLRA 147, 148	Coast Prairie Redox (A16)	(LRR K, L, R)
□ Hydrogen Sulfide (A4) □ Loamy Mucky Mineral (F1) (LRR K, L) □ Dark Surface (S7) (LRR K, L) □ Stratified Layers (A5) □ Loamy Gleyed Matrix (F2) □ Polyvalue Below Surface (S8) (LRR, K, L) □ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thin Dark Surface (S9) (LRR, K, L) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144 □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149) □ Stripped Matrix (S6) □ Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Present? Type: Compacted clay Depth (inches): 12 Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay we encountered at 12 inches below the soil surface Yes ⊠ No	Black His	stic (A3)	Thin Dark Surface	e (S9) (LRR R	MLRA 149B)	☐ 5 cm Mucky Peat or Peat (S	63) (LRR K, L, R)
□ Stratified Layers (A5) □ Loamy Gleyed Matrix (F2) □ Polyvalue Below Surface (S8) (LRR, K, L) □ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thin Dark Surface (S9) (LRR, K, L) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144 □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149) □ Stripped Matrix (S6) □ Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Present? Restrictive Layer (if observed): 12 Yes ⊠ No Type: Compacted clay Depth (inches): 12 Yes ⊠ No	Hydroger	n Sulfide (A4)	🔲 Loamy Mucky Mir	neral (F1) (LR I	R K, L)	Dark Surface (S7) (LRR K,	L)
□ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thin Dark Surface (S9) (LRR, K, L) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144 □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149 □ Sandy Redox (S5) □ Red Parent Material (F21) □ Very Shallow Dark Surface (TF12) □ Stripped Matrix (S6) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): _12 Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surface	Stratified	Layers (A5)	Loamy Gleyed Ma	atrix (F2)		Polyvalue Below Surface (S	68) (LRR, K, L)
□ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Iron-Manganese Masses (F12) (LRR, K, L) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144 □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149 □ Sandy Redox (S5) □ Red Parent Material (F21) □ Very Shallow Dark Surface (TF12) □ Stripped Matrix (S6) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): 12 Type: Compacted clay Depth (inches): 12 Yes ⊠ No	Depleted	Below Dark Surface (A	11)	F3)		☐ Thin Dark Surface (S9) (LR	R, K, L)
□ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Piedmont Floodplain Soils (F19) (MLRA 144 □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149 □ Sandy Redox (S5) □ Red Parent Material (F21) □ Very Shallow Dark Surface (TF12) □ Stripped Matrix (S6) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): 12 □ Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf	Thick Da	rk Surface (A12)	Redox Dark Surfa	ice (F6)		Iron-Manganese Masses (F	12) (LRR, K, L)
□ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) □ Mesic Spodic (TA6) (MLRA 144A, 145, 149 □ Sandy Redox (S5) □ Red Parent Material (F21) □ Stripped Matrix (S6) □ Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): 12 Hydric Soil Present? No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surface	Sandy M	ucky Mineral (S1)	Depleted Dark Su	rface (F7)		Piedmont Floodplain Soils ((F19) (MLRA 149B)
□ Sandy Redox (S5) □ Red Parent Material (F21) □ Stripped Matrix (S6) □ Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): 12 Press No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf	Sandy G	leyed Matrix (S4)	Redox Depressio	ns (F8)		☐ Mesic Spodic (TA6) (MLRA	144A, 145, 149B)
□ Stripped Matrix (S6) □ Very Shallow Dark Surface (TF12) □ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): 12 Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surface	Sandy R	edox (S5)				Red Parent Material (F21)	
□ Other (Explain in Remarks) ■ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Compacted clay Depth (inches): 12 □ Yes No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf	Stripped Stripped	Matrix (S6)				Very Shallow Dark Surface	(TF12)
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Hydric Soil Present? Type: Compacted clay Depth (inches): 12 □ Yes ⊠ No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf						Other (Explain in Remarks)	
Restrictive Layer (if observed): Hydric Soil Present? Type: Compacted clay Depth (inches): 12 Image: Yes No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf	³ Indicators o	f hydrophytic vegetation	and wetland hydrology mus	t be present, ι	Inless disturbed	or problematic	
Type: Compacted clay Depth (inches): 12 Image: Yes No Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf	Restrictive	Layer (if observed):				Hydric Soil Present?	
Remarks: No indicators of hydric soil were present at the time of the site visit. Compacted clay was encountered at 12 inches below the soil surf	Туре: (Compacted clay	Depth (inches):	12		☐ Yes ⊠ No	
	Type: (Compacted clay	Depth (inches):	12 of the site visit.	Compacted cla	Yes No	elow the soil su

Project/Site: Marshall Mega Si	to		City/County:	Marshall Townsh	ip	Sampling Date: 0/16/21		
Applicant/Owner: Marshall Arc	a Economia Dou	olonmont Alliv		<u>State:</u>	MI	Sampling Date. <u>3/10/21</u>		
Applicant/Owner. Marshall Are			ance	State.		Sampling Point. <u>SP-15</u>		
Landform (hillslope, terrace, etc.)	Elat in depres				$\frac{3271}{10000}$	Slone (%): 0		
Subregion (LRR or MLRA):		at: 12 262	20001101101 (001	Long: -84 99912	9. <u>None</u> 13	Slope (78)		
Soil Man Unit Name:		$\frac{42.2020}{6}$ to 12 porce	nt clopos	Long. <u>-04.99912</u>		fication: N/A		
Are elimete/budrelegie conditions		o to 12 percer	$\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i$		n ovnlain i			
Are climate/hydrologic conditions	on the site typica				io, explain i	n Remarks)		
Significantly Disturbed?	\propto		Are "No	ormal Circumstances	s" present?	🗌 Yes 🛛 No		
Naturally Problematic?			(1	f needed, explain any	answers in R	emarks)		
SUMMARY OF FINDINGS – A	ttach site map	showing s	ampling point lo	ocations, transed	cts, impor	tant features, etc.		
	Yes	No	Remarks: Sample	e Plot (SP)-13 is loca	ated in a far	rmed area near Wetland W-5.		
Hydrophytic Vegetation Present?		\boxtimes	Vegetation and so	il are disturbed due	to active ag	gricultural activities occurring at the		
Hydric Soil Present?		\boxtimes	sample plot location	on.				
Wetland Hydrology Present?	\boxtimes							
Is the Sampled Area within a W	/etland?							
HYDROLOGY		_						
Wetland Hydrology Indicators:				<u>S</u>	Se <u>condary li</u>	ndicators (minimum of two required)		
Primary Indicators (minimum of c	ne required; cheo	ck all that app	<u>oly)</u>	С	T Surface S	Soil Cracks (B6)		
Surface Water (A1)	C] Water-Stai	ned Leaves (B9)	 [☐ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Patterns (B10)		
☐ High Water Table (A2)	Γ	Aquatic Fa	una (B13)	C] Moss Trin	n Lines (B16)		
Saturation (A3)	Γ] Marl Depos	sits (B15)	C	_] Dry-Seas	on Water Table (C2)		
☐ Water Marks (B1)	Γ] Hydrogen	Sulfide Odor (C1)] Crayfish E	Burrows (C8)		
Sediment Deposits (B2)	C] Oxidized R	hizospheres on Liv	ing Roots (C3)	Saturation	n Visible on Aerial Imagery (C9)		
Drift Deposits (B3)	C	Presence of	of Reduced Iron (C4	4) [Stunted o	or Stressed Plants (D1)		
☐ Algal Mat or Crust (B4)	C	Recent Iror	n Reduction in Tille	d Soils (C6)	Geomorp	hic Position (D2)		
Iron Deposits (B5)	Γ	Thin Muck	Surface (C7)	Ľ] Shallow A	Aquitard (D3)		
☐ Inundation Visible on Aerial In	nagery (B7)] Other (Exp	lain in Remarks)	C] Microtopo	ographic Relief (D4)		
□ Sparsely Vegetated Concave Surface (B8) □ FAC-Neutral Test (D5)								
Field Observations:	Yes No	Depth	Describe Reco	orded Data (stream g	gauge, mon	itoring well, aerial photos, previous		
Surface Water Present?		<u>(inches).</u>	inspections, et	c.), if available:				
Water Table Present?								
Saturation Present?								
(includes capillary fringe)								
Wetland Hydrology Present?								
Remarks: Saturation Visible on /	Aerial Imagery (C	9) and Geom	orphic Position (D2) confirmed wetland	l hydrology.			

Sampling Point: SP-13

Tree Stratum (Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1	%			that are OBL, FACW, or FAC:1 (A)
2.	%			Total Number of Dominant
3.	%			Species Across All Strata:2 (B)
4	%			Percent of Dominant Species
5	%			that are OBL, FACW, or FAC:(A/B)
6	%			Prevalence Index worksheet:
7	%			Total % Cover of Multiply by:
	0 % =	Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft x 15 ft)				OBL species% x 1 =0
	0/			FACW species% x 2 =0
1	<u>%</u> 0/			FAC species% x 3 =20
2	<u>70</u>			FACU species 7 % x 4 = 28
4	<u> </u>		·	UPL species 20 % x 5 = 100
5.	%			$\begin{array}{c} \hline \begin{array}{c} \hline \end{array} \\ \\ \end{array} \\ \\ \hline \end{array} \\ \\ \\ \hline \end{array} \\ \\ \\ \hline \end{array} \\ \\ \\ \end{array} \\ \\ \\ \\$
6.	%	·		
7	%			Prevalence Index = B/A = <u>3.7</u>
	0 % =	- Total Cover		Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: <u>5 ft. x 5 ft.</u>)				□ 1 - Rapid Test for Hydrophytic Vegetation
1. Echinochloa crus-galli	40 %	Y	FAC	☐ 2 - Dominance Test is >50%
2. Glycine max	20 %	Y	UPL	□ 3 - Prevalence Index is $\leq 3.0^{1}$
3. <u>Plantago lanceolata</u>	5 %	<u>N</u>	FACU	
4. <u>Solanum carolinense</u> 5	<u>2 %</u> %	<u>N</u>	FACU	supporting data in Remarks or on a separate sheet)
6	%			Problematic Hydrophytic Vegetation ¹ (Explain)
7	%			¹ Indicators of hydric soil and wetland hydrology must be
8	%			present, unless disturbed or problematic
9	%		. <u> </u>	Definitions of Venetation Strates
10	<u>%</u>			Definitions of Vegetation Strata:
11	<u>%</u>			Tree – Woody plants 3 in. (7.6 cm) or more in
12			·	diameter at breast height (DBH), regardless of height.
Woody Vine Stratum (Plot size: <u>30 ft. x 30 ft.</u>)	<u> 67 % </u> =	 Total Cover 		Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
1	%			Herb – All herbaceous (non-woody) plants, regardless
2.	<u> </u>			of size, and woody plants less than 3.28 ft tall.
3.	%			Woody vine – All woody vines greater than 3.28 ft in
4.	%			height.
	0 % =	Total Cover		Hydrophytic Vegetation Present? Yes No

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.

Profile Desci	ription: (<i>Describe to the</i>	e depth needed to docu	ment the	indicator or c	onfirm ti	he absence of indicators.)	
Depth	Matrix		Redox F	eatures		_	
(inches)	Color (moist)	% Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 4/2 1	00				Sandy Clay Loam	
	· ·		· . <u></u>				
			·				·
			·				·
	·						·
			· . <u></u>				·
			·				
	·						
	·		·				
							·
¹ Type: C=Co	ncentration D=Depletion	RM=Reduced Matrix	/S=Maske		3	² l ocation: PI =Pore Lin	ing M=Matrix
		,,			-	Indicators for Problematic Hy	dric Soils ³ :
					\		
	(10)		/) (LRR F	K, MLRA 1498)		, MLRA 149B)
	bedon (A2)		/ Surface	(S8) (MLRA 14	47, 148)		
Black Hist	ic (A3)	☐ Thin Dark Surfa	ce (S9) (L	RR R, MLRA	1 49B)	5 cm Mucky Peat or Peat (S	3) (LRR K, L, R)
∐ Hydrogen	Sulfide (A4)	Loamy Mucky M	lineral (F1) (LRR K, L)		Dark Surface (S7) (LRR K,	L)
Stratified L	ayers (A5)	Loamy Gleyed N	Aatrix (F2))		☐ Polyvalue Below Surface (S	8) (LRR, K, L)
Depleted I	Below Dark Surface (A11) Depleted Matrix	(F3)			☐ Thin Dark Surface (S9) (LR	R, K, L)
Thick Dark	(Surface (A12)	Redox Dark Sur	face (F6)			Iron-Manganese Masses (F	12) (LRR, K, L)
☐ Sandy Mu	cky Mineral (S1)	Depleted Dark S	Surface (F	7)		Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gle	eyed Matrix (S4)	Redox Depressi	ons (F8)			Mesic Spodic (TA6) (MLRA	144A, 145, 149B)
Sandy Re	dox (S5)					Red Parent Material (F21)	
Stripped N	latrix (S6)					Very Shallow Dark Surface	(TF12)
						Other (Explain in Remarks)	
³ Indicators of	hydrophytic vegetation a	nd wetland hydrology m	ust be pre	sent, unless di	sturbed o	r problematic	
Restrictive L	ayer (if observed):					Hydric Soil Present?	
Туре:	Compacted clay	Depth (inches)	4			🗌 Yes 🖾 No	
surface.	o indicators of nyaric soli	were present at the time	of the slu	e visit. Compa	ced clay	was encountered at four inches b	elow the soli

Project/Site: Marshall Mega	Site			Marshall Township City/County: Calbour County Sampling Date: 9/16/21
Applicant/Owner: Marshall /	vrea Econol	mic Devel	onment Alli:	liance State: MI Sampling Point: SP-14
Investigator(s): Burns & Mc	Donnell (F.)			Section Township Range: S30 T2S R6W
Landform (hillslope terrace et	c) Flati	in depressi	ion	Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR or MLRA):	L	Lat	t: 42.267	7565 Long: -85.053481 Datum: NAD83
Soil Map Unit Name:	Histosols	and Fluvad	auents, freq	equently flooded NWI Classification: PEM1Ch
Are climate/hydrologic conditic	ns on the s	site typical	for this time	ue of year? ⊠ Yes □ No (If no, explain in Remarks)
y c Ve	enetation	Soil	Hvdrology	v
Significantly Disturbed?				Are "Normal Circumstances" present? 🛛 Yes 🗌 No
Naturally Problematic?				(If needed, explain any answers in Remarks)
SUMMARY OF FINDINGS -	Attach s	ite map s	showing s	sampling point locations, transects, important features, etc.
		Yes	No	Remarks: Wetland 6 (W-6) is a Palustrine Emergent (PEM)/Palustrine Scrub-Shrub
Hydrophytic Vegetation Preser	nt?	\boxtimes		(PSS) wetland.
Hydric Soil Present?		\boxtimes		
Wetland Hydrology Present?		\boxtimes		
Is the Sampled Area within a	Wetland?	\boxtimes		
HYDROLOGY				·
Wetland Hydrology Indicator	s:			Secondary Indicators (minimum of two required)
Primary Indicators (minimum c	f one requi	<u>red; check</u>	all that app	Dply)
🛛 Surface Water (A1)			Water-Stair	ained Leaves (B9)
🛛 High Water Table (A2)			Aquatic Fa	auna (B13)
Saturation (A3)			Marl Depos	osits (B15)
Water Marks (B1)		\boxtimes	Hydrogen \$	Sulfide Odor (C1)
Sediment Deposits (B2)			Oxidized R	Rhizospheres on Living Roots (C3) 🛛 🛛 Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)			Presence c	of Reduced Iron (C4)
Algal Mat or Crust (B4)			Recent Iror	on Reduction in Tilled Soils (C6)
Iron Deposits (B5) Thin Muck S				k Surface (C7)
☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Expla			Other (Exp	plain in Remarks)
Sparsely Vegetated Concar	/e Surface	(B8)		⊠ FAC-Neutral Test (D5)
Field Observations:	Yes	No	Depth (inches):	Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous
Surface Water Present?	\boxtimes		4	
Water Table Present?	\boxtimes		0	-
Saturation Present?	\boxtimes		0	-
(includes capillary fringe)	_		_	
Wetland Hydrology Present?				
Remarks: Surface Water (A1) Geomorphic Position (D2), and	High Wate I FAC-Neut	er Table (A tral Test (D	∖2), Saturati 05) confirme	tion (A3), Hydrogen Sulfide Odor (C1), Saturation Visible on Aerial Imagery (C9), ied wetland hydrology.

Sampling Point: SP-14

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1		%			that are OBL, FACW, or FAC:	<u>2</u> (A)
2.		<u> </u>			Total Number of Dominant	
3.		%			Species Across All Strata:	<u>2</u> (B)
4.		%			Percent of Dominant Species	
5		%			that are OBL, FACW, or FAC:	<u> 100% (</u> A/B)
6		%			Prevalence Index worksheet:	
7		%			Total % Cover of:	Multiply by:
		0 % =	= Total Cover	-		Multiply by.
Sapling/Shrub Stra	tum (Plot size: <u>15 ft. x 15 ft.</u>)				OBL species % x	1 = 0 2 = 0
1. Cornus racem	nosa	10 %	Y	FAC	EAC species % x	3 - 0
2		%			FAC species% x	3 – <u> </u>
3		%			FACU species% x	4 = 0
4		%			UPL species% x	5 =
5		%			Column Totals: <u>0</u> % (A	A) <u>0</u> (B)
6		%_	<u> </u>		Prevalence Index = B/A =	
<i>1</i>		%_				
		<u> 10 % </u> =	= Total Cover	•	Hydrophytic Vegetation Indicate	ors:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				☑ 1 - Rapid Test for Hydrophytic	Vegetation
1. Carex sp.		30 %	Y	UNK	⊠ 2 - Dominance Test is >50%	
2. Eleocharis pa	lustris	25 %	Y	OBL	☐ 3 - Prevalence Index is ≤3.0 ¹	
3. Lythrum alatu	m	20 %	<u>N</u>	OBL		(Drovido
4. Eupatorium pe	erfoliatum	10 %	<u>N</u>	FACW	supporting data in Remarks or	on a separate
5. <u>Caltha palustr</u>	18 16 - 11 -	10 %	<u>N</u>		sheet)	
6. <u>Typna angust</u>	ITOIIA	<u> </u>	<u> </u>		Problematic Hydrophytic Vege	tation ¹ (Explain)
		<u> </u>	<u> </u>	FACW	¹ Indicators of hydric soil and wetland h	ydrology must be
9		%			present, unless disturbed or problemati	C
10.		%			Definitions of Vegetation Strata	:
11.		%			Tree Weedy plants 2 in (7.6 cm)	r moro in
12.		%			diameter at breast height (DBH), reg	ardless of height.
		105 % =	= Total Cover		Sapling/Shrub – Woody plants less	than 3 in. DBH
Woody Vine Stratu	<u>m</u> (Plot size: <u>30 ft. x 30 ft.</u>)				and greater than 3.28 ft (1 m) tall.	
1		%			Herb – All herbaceous (non-woody) of size, and woody plants less than 3	plants, regardless 3.28 ft tall.
2		%				
3.					Woody vine – All woody vines great height	ter than 3.28 ft in
4		<u>%</u>				
		0 % =	= Fotal Cover	•	Hydrophytic Vegetation Present?	🛛 Yes 🗌 No

Remarks *(include photo numbers here or on a separate sheet)*: The Rapid Test for Hydrophytic Vegetation confirmed hydrophytic vegetation at the time of the site visit. The sedge species (*Carex* sp.) could not be identified to the species level at the time of the site investigation. The identification of the sedge species would not change the hydrophytic vegetation determination.

Profile Desc	ription: (Describe to Matrix	the depth	needed to docun	<i>nent the</i> Redox F	<i>indicator or</i> eatures	confirm ti	he absence of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	l oc ²	- Texture	Remarks
0-2	10YR 2/1	80					Muck	Temano
	10YR 6/1	20						Sand
2-20	10 <u>YR 2/1</u>	80			·		Loam	
	10YR 7/2	20			·			Sand
	·				·		- <u> </u>	
I	<u> </u>				<u> </u>			
ı 								
	·							
1Turner C-Cr			2-ducad Matrix M	-Mack			21 continue DI - Doro Linin	- M-Matrix
Type. 0-00			(educed Matrix, M	S=IVIaske	30 Sanu Gran	15		g, M=Maux
Hydric Soil I	ndicators:						Indicators for Problematic Hyd	ric Soils ³ :
Histosol (A	A1)		Dark Surface (S7	') (LRR R	k, MLRA 149	B)	2 cm Muck (A10) (LRR K, L,	MLRA 149B)
Histic Epi	pedon (A2)		Polyvalue Below	Surface ((S8) (MLRA 1	147, 148)	🗌 Coast Prairie Redox (A16) (L	RR K, L, R)
Black Hist	tic (A3)		Thin Dark Surfac	e (S9) (L	RR R, MLRA	. 149B)	☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
🛛 Hydrogen	Sulfide (A4)		Loamy Mucky Mi	neral (F1) (LRR K, L)		Dark Surface (S7) (LRR K, L)
Stratified	Layers (A5)		Loamy Gleyed M	atrix (F2)	I		Polyvalue Below Surface (S8) (LRR, K, L)
Depleted	Below Dark Surface (A	411) 🗌	Depleted Matrix ((F3)			Thin Dark Surface (S9) (LRR	, K , L)
Thick Dar	k Surface (A12)		Redox Dark Surf	ace (F6)			Iron-Manganese Masses (F12	2) (LRR, K, L)
🗌 Sandy Μι	ıcky Mineral (S1)		Depleted Dark Si	urface (F	7)		☐ Piedmont Floodplain Soils (F	19) (MLRA 149B)
Sandy Gle	eyed Matrix (S4)		Redox Depressic	ons (F8)			Mesic Spodic (TA6) (MLRA 1	44A, 145, 149B)
Sandy Re	dox (S5)						Red Parent Material (F21)	
Stripped N	√atrix (S6)						Very Shallow Dark Surface (1	F12)
							Other (Explain in Remarks)	
³ Indicators of	hydrophytic vegetatio	n and wetl	and hydrology mu	st be pres	sent, unless c	listurbed o	r problematic	
Restrictive L	_ayer (if observed):						Hydric Soil Present?	
Туре:	• .		Depth (inches):				⊠ Yes □ No	
Remarks: H	ydrogen Sulfide (A4) o	zonfirmed ł	ıydric soils.					

Draiaat/Sita: Maraball Maga Si	to		City/County/	Marshall Township	Sompling Data: 0/16/21		
Project/Site: Marshall Mega Si			City/County:		Sampling Date: 9/16/21		
Applicant/Owner: Marshall Are	a Economic De	velopment Allia	ance	State:	MI Sampling Point: SP-15		
Investigator(s): <u>Burns & McDo</u>	nnell (EJM & A	0)	Secti	on, Township, Range	: _ S30 T2S R6W		
Landform (hillslope, terrace, etc.)	Hillslope		Local relief (cor	ncave, convex, none)	Concave Slope (%): 10		
Subregion (LRR or MLRA): L		Lat: 42.2676	611	Long: <u>-85.053338</u>	Datum: NAD83		
Soil Map Unit Name:	Oshtemo sandy	loam, 6 to 12 p	percent slopes	N	IWI Classification: PEM1Ch		
Are climate/hydrologic conditions	on the site typi	cal for this time	e of year? 🛛 🛛 Y	es 🗌 No (If no	o, explain in Remarks)		
Vege	etation Soil	Hydrology	A	· • · · · · · · · · · · · · · · · · · ·			
Significantly Disturbed?			Are "No	ormal Circumstances	present? 🖾 Yes 📋 No		
Naturally Problematic?			(1	lf needed, explain any a	nswers in Remarks)		
SUMMARY OF FINDINGS – A	ttach site ma	ap showing s	sampling point l	ocations, transec	s, important features, etc.		
I	Ye	s No	Remarks: Sample	e Plot (SP)-15 is loca	ted adjacent to Wetland (W)-6.		
Hydrophytic Vegetation Present?							
Hydric Soil Present?	Ľ] 🛛 🛛					
Wetland Hydrology Present?] 🛛					
Is the Sampled Area within a W	/etland?	ש נ					
HYDROLOGY							
Wetland Hydrology Indicators:				Se	econdary Indicators (minimum of two regu	ired)	
Primarv Indicators (minimum of c	one reauired; ch	eck all that apr	nlv)		Surface Soil Cracke (BB)	<u></u>	
\square Surface Water (A1)		□ Water-Stai	ned Leaves (B9)		Drainage Dettorne (B10)		
☐ High Water Table (A2)			(R13)		Marca Trim Lings (D16)		
$\Box = \operatorname{Pright Value rabio}_{(\Lambda 2)}$					Moss Trim Lines (DTO)		
$\Box \text{ Saturation} (A3)$			Sils (D10) Sulfida Odar (C1)		Dry-Season Water Lable (C2)		
					Craytish Burrows (C8)		
			Contraction (C)		Saturation Visible on Aerial Imagery (U9)	1	
			of Reduced from (U4		Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	(DZ)		Surface (C7)		Shallow Aquitard (D3)		
	nagery (B7)	U Other (Exp	olain in Remarks)		Microtopographic Relief (D4)		
Sparsely Vegetated Concave	Surface (B8)				FAC-Neutral Test (D5)		
Field Observations:	Yes No	Depth (inches):	Describe Reco	orded Data (stream ga	auge, monitoring well, aerial photos, previ	ous	
Surface Water Present?		<u>(interfee)</u>					
Water Table Present?							
Saturation Present?							
(includes capillary fringe)							
Wetland Hydrology Present?							
Remarks: No indicators of wetlan	nd hydrology we	ere present at t	the time of the site	/isit.			

Sampling Point: SP-15

Tree Stratum (Plot size: 30 ft. x 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
, ,	%			that are OBL, FACW, or FAC:1 (A)
2.	%			Total Number of Dominant
3.	%			Species Across All Strata:3 (B)
4.	%			Percent of Dominant Species
5	%			that are OBL, FACW, or FAC:33% (A/B)
6	%			Prevalence Index worksheet:
7	%			Total % Cover of: Multiply by:
	0 % =	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft x 15 ft)				OBL species% x 1 =0
	40.0/	N/		FACW species% x 2 =0
1. Rhus typhina	<u>40 %</u>	<u> </u>		FAC species% x 3 =0
2. Antus giunnosa	<u> </u>	<u> </u>	FACW	FACU species % x 4 = 0
3	<u>/0</u>			P species % x 5 = 0
5	<u> </u>			$\frac{1}{2} = \frac{1}{2} $
6.	%			$\frac{1}{2} = \frac{1}{2} = \frac{1}$
7.	%			Prevalence Index = B/A =
	2 %	Total Cover		Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: <u>5 ft. x 5 ft.</u>)				☐ 1 - Rapid Test for Hydrophytic Vegetation
1. Phalaris arundinacea	30 %	Y	FACW	☐ 2 - Dominance Test is >50%
2. <u>Solidago altissima</u>	20 %	Y	FACU	\square 3 - Prevalence Index is <3.0 ¹
3. Rubus allegheniensis	15 %	Ν	FACU	
4. Cirsium arvense	10 %	<u>N</u>	FACU	4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate
5. Arctium minus	5 %	N	FACU	sheet)
6. Amaranthus retroflexus	2 %	<u>N</u>	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
7	<u>%</u>			¹ Indicators of hydric soil and wetland hydrology must be
8	<u>%</u>	. <u> </u>	·	present, unless disturbed or problematic
9	<u>%</u>			Definitions of Vegetation Strata:
11	<u>/0</u>			
12	<u> </u>			Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast beight (DBH), regardless of beight
	82 % =	- Total Cover		
Weady Vina Stratum (Dist size: 20 ft y 20 ft)	02 /0			Sapling/Shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
1	<u>%</u>			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
2		<u> </u>		
3	<u>%</u>			wooay vine – All woody vines greater than 3.28 ft in height.
· · · · · · · · · · · · · · · · · · ·		Tatal Oa		
	<u> </u>	= Total Cover		Hydrophytic Vegetation Present? 🗌 Yes 🛛 No

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.

Profile Desc	ription: (<i>Describe to th</i>	ne depth needed to doo	cument the in	ndicator or	confirm ti	he absence of indicators.)			
Depth		0/ <u>Calar (masist)</u>		Ture a ¹	1 2	- Tautuma	Demendre		
(inches)	Color (moist)	<u>%</u> Color (moist)	%	Туре	LOC		Remarks		
0-10	IN 2.5/0	100							
¹ Type: C=Co	oncentration, D=Depletic	on, RM=Reduced Matrix	, MS=Masked	Sand Grain	IS	² Location: PL=Pore Lini	ng, M=Matrix		
Hydric Soil I	ndicators:					Indicators for Problematic Hy	dric Soils ³ :		
Histosol (41)	Dark Surface	(S7) (LRR R,	MLRA 149	3)	2 cm Muck (A10) (LRR K, L ,	, MLRA 149B)		
Histic Epi	oedon (A2)	Polyvalue Bel	ow Surface (S	8) (MLRA 1	47, 148)	Coast Prairie Redox (A16) (I	LRR K, L, R)		
Black Hist	ic (A3)	Thin Dark Sur	face (S9) (LR	R R, MLRA	149B)	☐ 5 cm Mucky Peat or Peat (S	3) (LRR K, L, R)		
Hydrogen	Sulfide (A4)	Loamy Mucky	Mineral (F1)	(LRR K, L)		Dark Surface (S7) (LRR K, I	_)		
Stratified	Layers (A5)	Loamy Gleyed	l Matrix (F2)			Polyvalue Below Surface (S8	3) (LRR, K, L)		
Depleted	Below Dark Surface (A1	1) Depleted Matr	ix (F3)			☐ Thin Dark Surface (S9) (LRF	R, K, L)		
Thick Dar	k Surface (A12)	🗌 Redox Dark S	urface (F6)			☐ Iron-Manganese Masses (F1	2) (LRR, K, L)		
🗌 Sandy Mu	icky Mineral (S1)	Depleted Dark	Surface (F7)			Piedmont Floodplain Soils (F	⁻ 19) (MLRA 149B)		
Sandy Gle	eyed Matrix (S4)	Redox Depres	sions (F8)			Mesic Spodic (TA6) (MLRA	144A, 145, 149B)		
Sandy Re	dox (S5)					Red Parent Material (F21)			
Stripped N	/atrix (S6)					U Very Shallow Dark Surface (TF12)		
					Other (Explain in Remarks)				
³ Indicators of	hydrophytic vegetation	and wetland hydrology	must be prese	ent, unless c	isturbed o	r problematic			
Restrictive Laver (if observed):									
Type: R	ock	Depth (inche	s): 16			□ Yes ⊠ No			
Remarks: N	o indicators of hydric so	il were present at the tin	ne of the site	visit Rock v	as encou	ntered at 16 inches below the soil	surface		
Remarks. N						incred at 10 mones below the soli	Sundoo.		

Project/Site: Marshall Mega Si	te .			City/County:	Marshall Town	ship tv	Sampling Date: 9/16/21
Applicant/Owner: Marshall Are	a Economic	Development	Alliance	Only/Obunity.	State	e Mi	Sampling Date: <u>5710/21</u>
Investigator(s): Burns & McDc				Secti	on Townshin Ra	<u>. IVII</u>	
Landform (billslope, torrace, etc.)	Elat in de					nge. <u>029</u>	
Subrogion (I BB or MI BA):		Jot: 42.0	L				
Subregion (LRR or MLRA): <u>L</u>	-	Lat: <u></u>	275056		Long: <u>-85.023</u>		Datum: <u>NAD83</u>
	sniemo sano	<u>ay ioam, 0 to 6</u>	percent				sincation: N/A
Are climate/hydrologic conditions	on the site t	ypical for this t	ime of y	ear? 🛛 Y	es 🗌 No (/	lf no, explair	n in Remarks)
Significantly Disturbed?	station So ⊠ ⊾	oil Hydrolo ⊠ □	ogy	Are "No	ormal Circumstan	ces" present	? □Yes ⊠No
Naturally Problematic?				(*	If needed, explain a	ny answers in	Remarks)
	ttach site		acami	nling noint l	ocations trans	acts imp	ortant foaturos, oto
SUMMART OF FINDINGS - A	ttach site i		g samp			sects, impo	Driant leatures, etc.
Hydrophytic Vogotation Procent?		Yes NO	due	to active agric	cultural activities c	ned wetland	the sample plot location.
Hydrophylic vegetalion Fresent:						-	
Wetland Hvdrology Present?							
Is the Sampled Area within a W	etland?						
		<u> </u>	<u> </u>				
Wetland Hydrology Indicators						Secondary	Indiantary (minimum of two required)
Brimany Indicators (minimum of c	no required:	check all that	annly)				
Plinary indicators (minimum or o	<u>Ile requirea,</u>		<u>appiy</u> Stained I	Loover (BQ)			Soil Cracks (B6)
\Box Surface Water (AT) \Box High Water Table (A2)				Leaves (Da)			e Patterns (B10)
\square Flight Water Table (72) \square Saturation (A3)			Pauna ((D13) R15)			rim Lines (B16)
\square Water Marks (B1)			en Sulfic	de Odor (C1)			
Sediment Deposits (B2)			d Rhizog	soheres on Liv	ving Roots (C3)		on Visible on Aerial Imagery (C9)
\square Drift Deposits (B3)			ce of Re	educed Iron (C	4)		or Stressed Plants (D1)
Algal Mat or Crust (B4)		☐ Recent	Iron Red	duction in Tille	d Soils (C6)		rahic Position (D2)
☐ / Iron Deposits (B5)		 Π Thin Μι	uck Surfa	ace (C7)			Aquitard (D3)
☐ Inundation Visible on Aerial In	agery (B7)	 □ Other (I	Explain i	in Remarks)			pographic Relief (D4)
□ □ Sparsely Vegetated Concave	Surface (B8)) _ `	•	,		FAC-Ne	eutral Test (D5)
		Depth		Describe Reco	orded Data (strear	m daude, mo	pnitoring well, aerial photos, previous
Field Observations:	Yes No	o <u>(inches)</u>	<u>:</u> i	inspections, et	tc.), if available:		
Surface Water Present?]	-				
Water Table Present?]					
(includes capillary fringe)]0	-				
Wetland Hydrology Present?]					
Remarks: Saturation (A3) and G	eomorphic P	osition (D2) cc	onfirmed	wetland hydro	blogy.		
		. ,					

Sampling Point: SP-16

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.		%			that are OBL, FACW, or FAC:	(A)
2.		%			Total Number of Dominant	
3.		%			Species Across All Strata:	(B)
4.		%			Percent of Dominant Species	
5		%			that are OBL, FACW, of FAC:	<u> </u>
6		%			Prevalence Index worksheet	:
7		%	<u> </u>		Total % Cover of	Multiply by
		0 % =	= Total Cover	-		<u></u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft. x 15 ft.)</u>				OBL species%	x 1 = <u>0</u>
1	,	%			FACW species%	x 2 = <u>0</u>
2.		<u> </u>			FAC species%	x 3 =
3.		%			FACU species%	x 4 =0
4.		%			UPL species%	x 5 = <u>0</u>
5.		%			Column Totals: 0 %	(A) 0 (B)
6		%			Brovelence Index - B/A -	.,,
7		%				
		0 % =	= Total Cover		Hydrophytic Vegetation Indi	cators:
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				1 - Rapid Test for Hydroph	ytic Vegetation
1		%			☐ 2 - Dominance Test is >50 ⁶	%
2		%			☐ 3 - Prevalence Index is ≤3.	0 ¹
3		<u>%</u>			☐ 4 - Morphological Adaptati	ons ¹ (Provide
4		<u>%</u>			supporting data in Remarks	s or on a separate
5		<u>%</u>			sheet)	
0 7		<u> </u>			Problematic Hydrophytic V	egetation ¹ (Explain)
8		<u> </u>			¹ Indicators of hydric soil and wetla	nd hydrology must be
9.		<u> </u>			present, unless disturbed of proble	mauc
10.		%			Definitions of Vegetation Str	ata:
11.		%			Trop Woody plants 3 in (7.6 c	m) or more in
12.		%			diameter at breast height (DBH),	regardless of height.
		0 % =	= Total Cover		Sanling/Shrub – Woody plants	less than 3 in_DBH
Woody Vine Stratum	(Plot size: 30 ft. x 30 ft.)				and greater than 3.28 ft (1 m) tal	I.
1	,,	0/2			Herb – All herbaceous (non-woo	dv) plants, regardless
2		<u> </u>			of size, and woody plants less th	an 3.28 ft tall.
3.		<u> </u>			Woody vine – All woody vines of	reater than 3.28 ft in
4.		%			height.	
		0 % =	= Total Cover		Hudrophytic Vagatation Proces	
					riyurophylic vegetation Preser	

Remarks *(include photo numbers here or on a separate sheet):* No vegetation was observed within the sample plot due to the location occurring within an agricultural field. Due to the position in the landscape, slope, and landform, and presence of wetland hydrology and hydric soil indicators it is assumed hydrophytic vegetation would be present if agricultural activities were to cease.

Matrix	Ro	tox Features			
Color (moist) %	Color (moist)				
10VR 3/1 80	5VR 5/6	<u>% Type L</u> 20 C	M Sandy Clay		
oncentration, D=Depletion, F	RM=Reduced Matrix, MS=	Aasked Sand Grains	² Location: PL=Pore Lining, M=Matrix		
Indicators:			Indicators for Problematic Hydric Soils ³ :		
(A1)	Dark Surface (S7) (L	.RR R, MLRA 149B)	2 cm Muck (A10) (LRR K, L, MLRA 149B)		
ipedon (A2)	Polyvalue Below Sur	face (S8) (MLRA 147,	148) 🗌 Coast Prairie Redox (A16) (LRR K, L, R)		
stic (A3)	Thin Dark Surface (S	9) (LRR R, MLRA 149	B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I		
n Sulfide (A4)	Loamy Mucky Miner	al (F1) (LRR K, L)	Dark Surface (S7) (LRR K, L)		
Layers (A5)	Loamy Gleyed Matri	x (F2)	Polyvalue Below Surface (S8) (LRR, K, L)		
Below Dark Surface (A11)	Depleted Matrix (F3)		☐ Thin Dark Surface (S9) (LRR, K, L)		
rk Surface (A12)	🛛 Redox Dark Surface	(F6)	☐ Iron-Manganese Masses (F12) (LRR, K, L)		
ucky Mineral (S1)	Depleted Dark Surfa	ce (F7)	Piedmont Floodplain Soils (F19) (MLRA 14		
leyed Matrix (S4)	Redox Depressions	(F8)	Mesic Spodic (TA6) (MLRA 144A, 145, 145)		
edox (S5)			Red Parent Material (F21)		
Matrix (S6)			Very Shallow Dark Surface (TF12)		
			Other (Explain in Remarks)		
f hydrophytic vegetation and	wetland hydrology must b	e present, unless distu	rbed or problematic		
Layer (if observed):			Hydric Soil Present?		
Rock	Depth (inches): 6		🛛 Yes 🔲 No		
	inimed nyunc sons. Rock v				
	Color (moist) % 10YR 3/1 80 10YR 3/1 80 1	Color (moist) % Color (moist) 10YR 3/1 80 5YR 5/6 10YR 3/1 9 10 10YR 3/1 9 10 10YR 3/1 9 10 10YR 3/1 9 10 10YR 3/1 10 10	Color (moist) % Type1 1 10YR 3/1 80 5YR 5/6 20 C 10 1 1 1 1 1 10 1 1 1 1 1 10 1 1 1 1 1 1 10 1 1 1 1 1 1 1 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

Project/Site: Marshall Mega Si	to		City/County:	Marshall Township	Sam	nling Data: 0/16/21				
			Sam							
Applicant/Owner: <u>Marshall Are</u>	a Economic Dev	velopment Allia	nce	State:	<u>MI</u>	Sampling Point: <u>SP-17</u>				
Investigator(s): <u>Burns & McDo</u>	nnell (EJM & AC)	Section	n, Township, Range	: S29 T2S R6	W				
Landform (hillslope, terrace, etc.)	Hillslope		_ Local relief (conc	ave, convex, none):	Concave	Slope (%): <u>15</u>				
Subregion (LRR or MLRA): L		Lat: <u>42.2750</u>	82 I	_ong: <u>-85.022981</u>	I	Datum: NAD83				
Soil Map Unit Name: Oshtemo sandy loam, 0 to 6 percent slopes NWI Classification: N/A										
Are climate/hydrologic conditions on the site typical for this time of year? 🛛 Yes 🗌 No (If no, explain in Remarks)										
Vege	etation Soil	Hydrology	A "N	· • · • • •						
Significantly Disturbed?	Are "Nor	Are "Normal Circumstances" present? 🛛 Yes 🛛 No								
Naturally Problematic? (If needed, explain any answers in Remarks) (If needed, explain any answers in Remarks) 										
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.										
	Ye	s No	Remarks: Sample	Plot (SP)-17 is locat	ed adjacent to V	Vetland (W)-7 within an				
Hydrophytic Vegetation Present?	Hydrophytic Vegetation Present?				e disturbed due	to active agricultural activities				
Hydric Soil Present?			becaring at the sal	hpic plot location.						
Wetland Hydrology Present?										
Is the Sampled Area within a W	/etland?									
HYDROLOGY										
Wetland Hydrology Indicators:				Se	condary Indicat	ors (minimum of two required)				
Primary Indicators (minimum of c	ne required; che	eck all that app	<u>(y)</u>		Surface Soil Cra	acks (B6)				
Surface Water (A1)		U Water-Stair	ned Leaves (B9)	d Leaves (B9)						
☐ High Water Table (A2)		☐ ☐ Aquatic Fat	$(B13) \qquad \qquad \square Moss Trim Lines (B16)$							
☐ Saturation (A3)		☐ Marl Depos	its (B15)	s (B15)						
☐ Water Marks (B1)		Π Hvdroaen S	Sulfide Odor (C1)	Ifide Odor (C1)						
☐ Sediment Deposits (B2)		☐ Oxidized RI	nizospheres on Livir	ospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)						
☐ Drift Deposits (B3)		☐ Presence o	f Reduced Iron (C4)	Reduced Iron (C4)						
Algal Mat or Crust (B4)		Recent Iron	Reduction in Tilled	Soils (C6)	Geomorphic Pc	position (D2)				
\square Iron Deposits (B5)			Surface (C7)		Shallow Aquita					
	nagery (B7)	Other (Expl	ain in Remarks)	nace (Cr) Sitallow Aquitard (D3)						
Sparsely Vegetated Concave	Surface (B8)				FAC-Neutral Te	(D4)				
		Dopth	Decerite Dece							
Field Observations:	Yes No	(inches):	inspections, etc	ded Data (stream ga .), if available:	auge, monitoring	y well, aerial photos, previous				
Surface Water Present?	\Box									
Water Table Present?	\Box									
Saturation Present?										
Wetland Hydrology Present?										
Remarks: No indicators of wetland hydrology were present at the time of the site visit										
	id Hydrology we	io prosoni ai i		Sit.						

Sampling Point: SP-17

Tree Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:		
1	·	%	<u></u>		that are OBL, FACW, or FAC:	<u> </u>	
2.		%			Total Number of Dominant		
3.		%			Species Across All Strata:	<u> </u>	
4.		%			Percent of Dominant Species		
5		%			that are OBL, FACW, or FAC:	<u> 0% (</u> A/B)	
6		%			Prevalence Index worksheet:		
7		%		<u> </u>	Total % Cover of	Multiply by:	
		0 % =	Total Cover			watapiy by:	
Sapling/Shrub Stratum	(Plot size: 15 ft. x 15 ft.)				OBL species%	x 1 = <u>0</u>	
1	(0/2			FACW species%	x 2 =	
2		<u>/0</u>			FAC species%	x 3 =	
3.		<u> </u>			FACU species%	x 4 =	
4.		%		·	UPL species %	x 5 = 0	
5.		%			Column Totals: 0 %	(A) 0 (B)	
6		%					
7		%			Prevalence Index = B/A =		
		2 % =	Total Cover		Hydrophytic Vegetation Indica	ators:	
Herb Stratum	(Plot size: <u>5 ft. x 5 ft.</u>)				☐ 1 - Rapid Test for Hydrophyt	ic Vegetation	
1. <u>Zea mays</u>		40 %	Y	UPL	☐ 2 - Dominance Test is >50%		
2		%			☐ 3 - Prevalence Index is ≤3.0	1	
3		%			4 - Morphological Adaptation	1.5 ¹ (Provide	
4		%			supporting data in Remarks or on a separate sheet)		
5		<u> </u>					
7		<u>%</u>			Problematic Hydrophytic Ve	getation' (Explain)	
8.		<u> </u>			¹ Indicators of hydric soil and wetland	d hydrology must be	
9.		%					
10.		%			Definitions of Vegetation Stra	ta:	
11		%			Tree – Woody plants 3 in. (7.6 cm) or more in	
12		%			diameter at breast height (DBH), r	egardless of height.	
March March Observations		40 % =	Total Cover		Sapling/Shrub – Woody plants le	ss than 3 in. DBH	
woody vine Stratum	(Plot size: <u>30 ft. x 30 ft.</u>)						
1		%		. <u> </u>	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
2		%					
3		<u>%</u>		·	woody vine – All woody vines green height.	eater than 3.28 ft in	
4		70			5		

Remarks (include photo numbers here or on a separate sheet): No indicators of hydrophytic vegetation were present at the time of the site visit.

Profile Desc	ription: (<i>Describe to</i>	the de	pth needed to docu	ment the	indicator or	confirm t	he absence of indicators.)			
Depth	Matrix		F	Redox Fe	atures		_			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-2	10YR 3/2	70			. <u> </u>		Sand	Gravel present		
<u> </u>	10YR 4/3	30								
					. <u> </u>					
<u> </u>					·					
					- <u> </u>					
¹ Type: C=Co	ncentration, D=Deple	tion, RI	M=Reduced Matrix, M	IS=Maske	ed Sand Grai	าร	² Location: PL=Pore Lin	ing, M=Matrix		
Hydric Soil I	ndicators:						Indicators for Problematic Hy	/dric Soils³:		
Histosol (A	A 1)		Dark Surface (S	7) (LRR F	R, MLRA 149	B)	☐ 2 cm Muck (A10) (LRR K, L	., MLRA 149B)		
Histic Epip	pedon (A2)		Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (LRR K, L, R)				
Black Hist	ic (A3)		Thin Dark Surfac	ce (S9) (LRR R, MLRA 149B)			☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
☐ Hydrogen Sulfide (A4) ☐ Loamy Mucky Mineral (F1)) (LRR K, L)		Dark Surface (S7) (LRR K,	L)			
Stratified I	_ayers (A5)		Loamy Gleyed M	latrix (F2))		Polyvalue Below Surface (S8) (LRR, K, L)			
Depleted I	Below Dark Surface (A	A11)	Depleted Matrix	(F3)			Thin Dark Surface (S9) (LRR, K, L)			
Thick Dark	k Surface (A12)		Redox Dark Sur	face (F6)			☐ Iron-Manganese Masses (F12) (LRR, K, L)			
🗌 Sandy Mu	cky Mineral (S1)		Depleted Dark S	urface (F	7)		Piedmont Floodplain Soils (F19) (MLRA 149B)			
Sandy Gle	eyed Matrix (S4)		Redox Depression	ons (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
Sandy Re	dox (S5)						Red Parent Material (F21)			
Stripped N	/latrix (S6)						☐ Very Shallow Dark Surface (TF12)			
							Other (Explain in Remarks)			
³ Indicators of	hydrophytic vegetatio	on and v	wetland hydrology mu	ist be pre	sent, unless o	listurbed o	r problematic			
Restrictive L	ayer (if observed):						Hydric Soil Present?			
Type: R	ock		Depth (inches):	2			🗌 Yes 🛛 No			
Remarks: N	o indicators of hydric	soil wei	e present at the time	of the site	e visit. Rock v	vas encou	ntered at two inches below the so	bil surface.		

APPENDIX C - SITE PHOTOGRAPHS



Photograph C-1: View of Sample Plot (SP)-1, facing southwest, towards palustrine emergent (PEM) Wetland (W)-1.



Photograph C-2: View of SP-2, facing north, in upland adjacent to W-1.

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Photograph C-3: View of SP-3, facing west, towards PEM W-1.



Photograph C-4: View of SP-4, facing northeast, in upland adjacent to W-1.

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Photograph C-5: View of SP-5, facing south towards palustrine emergent/palustrine scrub-shrub (PEM/PSS) W-2.



Photograph C-6: View of SP-6, facing southwest, in upland adjacent to W-2.

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Photograph C-7: View of SP-7, facing southeast towards PEM W-3.



Photograph C-8: View of SP-8, facing southeast, in upland adjacent to W-3.

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Photograph C-9: View of SP-9, facing southeast towards PEM W-4.



Photograph C-10: View of SP-10, facing south, in upland adjacent to W-4.

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Photograph C-11: View of SP-11, facing southeast toward PEM/PSS W-5.



Photograph C-12: View of SP-12, facing east, in upland adjacent to W-5.

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Photograph C-13: View of SP-13, facing north, in upland within an agricultural field.



Photograph C-14: View of SP-14, facing southeast toward PEM/PSS W-6.

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Photograph C-15: View of SP-15, facing south, in upland adjacent to W-6.



Photograph C-16: View of SP-16, facing west toward PEMf W-7.

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Photograph C-17: View of SP-17, facing east, in upland adjacent to W-7.

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