TYPE II and TYPE III STORM VARIANCE

OSU Multi-Species Animal Learning Center 03 April 2024

Facility

OSU Multi-Species Animal Learning Center 2548 Carmack Rd



OFFICES

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Appendix:

Variance Plan

Tributary Map

STONE Environmental Stream/Wetland Delineation Report



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Greg Fedner, P.E. City of Columbus, Division of Sewerage & Drainage 111 North Front Street Columbus, Ohio 43215

RE: The Ohio State University Multi-Species Animal Learning Center (OSU MALC) 2548 Carmack Road CC-20226

Mr. Fedner

Sands Decker would like to request a Type II Variance from the City of Columbus Stormwater and Drainage Manual (SWDM) Section 3.4.9 Constructed Wetlands for The Ohio State University Multi-Species Animal Learning Center, CC-20226, on behalf of The Ohio State University. Specifically, we are seeking a variance to the layout and geometry requirements as well as the pretreatment requirement. According to the SWDM Section 3.4.9, Layout and Geometry Requirements number 3, "Constructed wetlands shall be provided with a drain so that the facility can be emptied to allow maintenance activities and to dry bottom sediments (allowing natural oxidation of built-up organic)." Additionally, Layout and Geometry Requirement number 4, "Deep water zones shall be placed within the forebay and around the primary outlet to minimize disruption of wetland vegetation during sediment removal operations.". Lastly, pretreatment requirement, "Due to the sensitivity of wetland vegetation to sedimentation, a forebay, or other pretreatment feature, shall be provided at each inlet of all constructed wetlands.". At The Ohio State University Waterman Farm, there is an existing constructed wetland that currently handles a portion of the site under redevelopment. The intent is to utilize the existing constructed wetland for a portion of the re-developed site so as to continue to provide stormwater to the wetland cell.

SITE CIVIL ENGINEERING
LAND SURVEYING
CONSTRUCTION SURVEYING
MUNICIPAL ENGINEERING
LAND PLANNING
WATER SYSTEMS
WASTEWATER
STORMWATER
FLOOD STUDY
TRANSPORTATION ENGINEERING
CONSTRUCTION ADMINISTRATION

In addition to the Type II Variance, Sands Decker would like to request a Type III Variance from the City of Columbus Stormwater and Drainage Manual (SWDM) Section 1.3.3 Prohibited Uses in the Stream Corridor Protection Zone for The Ohio State University Multi-Species Animal Learning Center, CC-20226, on behalf of The Ohio State University. Specifically, we are seeking a variance to the prohibited facilities within the stream corridor protection zone. According to the SWDM Section 1.3.3, "Utility lines or pipes that run parallel to the stream (except for



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507 Main Street, Suite 203 Zanesville, OH 43701 740-450-1640 necessary public sanitary, water, stormwater [see above] and public utility transmission lines as approved by the City)" are considered prohibited facilities. At The Ohio State University Waterman Farm, existing storm facilities run parallel to the stream and are located within the stream corridor protection zone. The storm infrastructure currently conveys stormwater from the currently developed Waterman Farm to an existing constructed wetland cell north of the stream. This storm facility is currently crossing the stream above the stream bed and is broken at a point north of the stream where the pipe is parallel to the stream. The intent of the project is to replace the storm pipe located within the stream corridor protection zone, upsize to handle the flow of stormwater tributary to the constructed wetland cell, and lower the pipe to provide cover over the pipe where the stream crossing occurs. To minimize impact to the stream corridor protection zone, the project is replacing the pipe further north to eliminate extensive vegetation and tree removal.

Photos of existing storm conditions are provided in Exhibit A. An existing condition plan for pipe to be replaced and upsized is shown on Variance Plan A.

TYPE II Variance

Fully Compliant Alternative (See Variance Plan A)

The fully compliant alternate would include replacing the furthest most downstream catch basin with a hydrodynamic separator. The hydrodynamic separator would perform the same 50% total suspended solids removal that the forebay would perform as pretreatment. Additionally, the fully compliant alternate would add a drain at the bottom of the outlet structure to dry bottom sediments and allow for maintenance. Lastly, the outlet pipe to the wetland would be replaced with a larger outlet pipe to the stream. This would allow the wetland to discharge more stormwater to maintain a maximum ponding depth, above the normal pool, of 2' according to the manual. However, since this alternate would not comply to the current critical storm event to the 1-year predeveloped release rate and the 100-year post developed release rate to the 10year pre-developed release rate, we would over detain in the proposed detention basin for a total site release rate that would comply with the storm water regulations for critical to 1 and 100 to 10 release rates. The fully compliant alternate will cost \$94,000 more than the preferred alternate to add a hydrodynamic separator and replace the outlet pipe.



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Minimal Impact Alternate (see Variance Plan B)

A minimal impact alternative would include excavating the existing constructed wetland in order to provide a deep pool in the form of a forebay for pretreatment at the inlet pipe. In order to provide a forebay for the existing constructed wetland cell, it would be required to remove established wetland vegetation and disrupt the established ecosystem. In addition, Ohio State University would need to obtain a variance to excavate within the stream corridor protections zone. Additionally, the minimal impact alternate would add a drain at the bottom of the outlet structure to dry bottom sediments and allow for maintenance. Lastly, the outlet pipe to the wetland would be replaced with a larger outlet pipe to the stream. This would allow the wetland to discharge more stormwater to maintain a maximum ponding depth, above the normal pool, of 2' according to the manual. However, since this alternate would not comply to the current critical storm event to the 1-year pre-developed release rate and the 100-year post developed release rate to the 10-year pre-developed release rate, we would over detain in the proposed detention basin for a total site release rate that would comply with the storm water regulations for critical to 1 and 100 to 10 release rates. The minimal impact alternate will cost \$38,000 less than the fully compliant alternate but will cost \$56,000 more than the preferred alternate to excavate a forebay and replace the outlet pipe.

Preferred Alternate (See Variance Plan C)

The preferred alternative would not modify the existing constructed wetland. The existing constructed wetland would be utilized for stormwater control without the pretreatment in the form of a deep pool forebay. Additionally, a drain would not be added to the outlet structure to allow for drying of sediment and maintenance. The site has been designed using the Ohio Environmental Protection Agency (OEPA) re-development calculation for water quality (Equation 3; OH000006). Therefore, based on this calculation, there is a large enough portion of the site tributary to the proposed detention basin that water quality will not be required in the wetland cell. Consequently, we will not modify the existing constructed wetland to provide a pretreatment forebay. If there is a requirement for the existing constructed wetland cell to be drained completely for drying of sediment and/or maintenance, The Ohio State University may utilize a muddy water discharge system. Similarly to the minimal impact alternative, this alternate would not comply to the current critical storm event to the 1-year pre-developed release rate and the 100-year post developed release rate to the 10-year pre developed



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507 Main Street, Suite 203 Zanesville, OH 43701 740-450-1640 release rate, we would over detain in the proposed detention basin for a total site release rate that would comply with the storm water regulations for critical to 1 and 100 to 10 release rates.

Type III Variance

Stream Corridor Protection Zone

There is an unnamed stream that runs east/west across the site with well-defined banks that is home to stabilized vegetation. Based on available information provided by USGS stream stats, it was determined that the drainage area for the downstream end of the unnamed stream adjacent to the project development site is 0.37 square miles. According to the stream corridor protection zone calculations provided in the City of Columbus SWDM, $147(DA)^{0.38}$, the stream corridor protection zone adjacent to the project site is calculated to be $147(0.37)^{0.38} = 100.75' = 101'$.

The stream corridor protection zone is naturally vegetated. The vegetation consists of natural grasses, ryes, and ground cover along with Quenn Ann's Lace, Joe-pye weed, Cup plant, and various voluntary small diameter trees (1" - 6") that appear to be comprised of cotton wood, silver maple, and invasive honeysuckle. Refer to STONE Environmental stream/wetland delineation report in Appendix A for additional vegetation identification.

Fully Compliant Alternative (See Variance Plan D)

A fully compliant alternative for a storm sewer layout would include a stream crossing but would eliminate storm sewer parallel to the stream. Additionally, besides the stream crossing, which will be performed by directional drilling, the storm sewer will not be located within the stream corridor protection zone. However, the fully compliant storm sewer layout provides hardship to The Ohio State University, specifically, the operations of Waterman Farm. The fully compliant alternative would require the storm sewer to be located under Carmack Road. Therefore, this alternative would require removal and replacement of existing asphalt roads. It would also inhibit traffic flow throughout Waterman Farm for the duration of construction. Additionally, this alternative requires crossing multiple existing utility facilities. Lastly, the layout would require additional length of pipe, additional storm structures, and upsizing of the pipe from the preferred alternative due to the increase in length of pipe. The fully compliant alternative will cost approximately \$104,300 more than the preferred



alternative due to the increased pipe length, increased pipe size, additional manholes, and pavement removal/replacement for the trench.

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Minimal Impact Alternative (See Variance Plan A)

A minimal impact alternative would eliminate the storm sewer parallel to the stream and would not be located within the stream corridor protection zone. However, the minimal impact alternative would require the stream crossing to be elevated above the stream bed in order to discharge into the existing constructed wetland cell north of the stream. Due to the elevated pipe across the stream, Sands Decker and The Ohio State University have concerns. This minimal impact alternative also poses hardship to the operations of Waterman Farm and the research conducted on site. The layout of the storm sewer would impact multiple agricultural research plots and it would require additional storm pipe and structures. The minimal impact alternative will cost approximately \$76,800 less than the fully compliant alternative since it will require less pipe, less structures and will not impact the existing road on site. However, it will cost approximately \$27,500 more than the preferred alternative due to the increased pipe length, increased pipe size, and additional structures.

Preferred Alternative (See Variance Plan A)

The preferred alternative for the project re-development would be to abandon in place the existing storm sewer that crosses the stream above the stream bed and is broken. The existing alignment would then shift north to provide more separation from the stream bed and construction limits. This will also minimize the disturbance and impact to the stream corridor protection zone and existing vegetation. The preferred alternative would lower the stream crossing to provide minimum cover, upsize the pipe to provide capacity for the tributary area to the wetland cell and correct the broken pipe. However, the preferred alternate will remain parallel to an existing sanitary sewer. STONE Environmental has performed a site visit and delineated the stream and constructed wetland cells north of the stream. They have determined that a US Army Corps of Engineers Nationwide Permit will be required to perform the work necessary for the preferred alternative. The Ohio State University is prepared to work in conjunction with STONE Environmental to obtain the necessary permits associated with the preferred alternative. The preferred alternative is the most cost-effective approach for the project re-development while maintaining water supply to the existing constructed wetland cell.

Preferred Alternate Stream Corridor Protection Zone Impacts



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507 Main Street, Suite 203 Zanesville, OH 43701 740-450-1640 The preferred alternate will utilize directional boring for the perpendicular stream crossing. Additionally, it will include trenching for the proposed replacement pipe parallel to the stream. Since the existing storm alignment has been shifted north outside of the tree line, there will be minimal impacts to vegetation located in the stream corridor protection zone due to trenching. To perform trenching, the contractor will remove existing natural grasses and ground cover. Topsoil will be stockpiled for re-use at the end of construction. Trenching will also remove invasive honeysuckle and Quenn Ann's Lace. The construction will include tree trimming where necessary along the tree line and wetland cell to gain adequate access for trenching and pipe installation between the tree line and wetland cell. Upon completion of trenching, the contractor will backfill the trench, top with stockpiled topsoil and seed the disturbed areas. The proposed storm sewer for the preferred alternate has been strategically placed to minimize impact to existing vegetation located within the stream corridor protection zone.

Preferred Alternate Mitigation Plan

Upon completion of construction, the contractor will backfill the trench for the proposed storm pipe. The contractor will seed the disturbed areas with grass species according to the City of Columbus Storm Water Drainage Manual Appendix B, Native Plant Species for Stormwater Quality Best Management Practices. Additionally, the contractor will replace any and all trees damaged and/or removed during construction at a 1:1 ratio. Shall replacement trees be required; the trees shall be planted within the stream corridor protection zone.

Future Sewer Maintenance Needs for the Preferred Alternate

Future sewer maintenance needs include regular maintenance. This includes but is not limited to cleaning the storm sewer via jet vac sewer cleaning. The company hired to perform this maintenance will have access to proposed manholes without necessitating vegetation removal. In the event there is sewer failure and replacement must occur, the preferred alternate alignment has been designed to minimize disturbance/removal of vegetative cover. Replacement of the sewer should not have an impact greater than what has been proposed for the initial sewer installation.



Conclusion

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507 Main Street, Suite 203 Zanesville, OH 43701 740-450-1640 In conclusion, Sands Decker, on behalf of The Ohio State University, is seeking a Type III Variance from the City of Columbus Stormwater Drainage Manual (SWDM) Section 1.3.3 Prohibited Uses in the Stream Corridor Protection Zone. The purpose of the variance request is for removal and replacement of existing storm infrastructure that is currently located within the stream corridor protection zone and runs parallel to the stream. The necessity of this project is critical to maintain stormwater conveyance to the existing constructed wetland cell north of the stream. The lack of stormwater conveyance from the re-developed site would pose a risk of inadequate recharge to the existing constructed wetland. This would create additional hardship for The Ohio State University due to the requirement for mitigation. The Ohio State University would prefer to maintain the existing constructed wetland for water quality benefits before discharging to the stream and for education/research purposes that the constructed wetland provides to The University.

Please contact us with any further questions or concerns. We appreciate your consideration of the variance request for the re-development project at Waterman Farms.

Sincerely, Sands Decker

Mark Cameron, P.S.

mcameron@sandsdecker.com

614-459-6992 ext. 223



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Exhibit A - Photos for Type II Variance

Constructed wetland (Photo taken looking Northwest)



Constructed wetland (Photo taken Northeast)





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Exhibit B – Photos for Type III Variance

Existing Storm Pipe Crossing Stream Above Grade:



Natural grass cover along tree line north of stream (Photo looking West)





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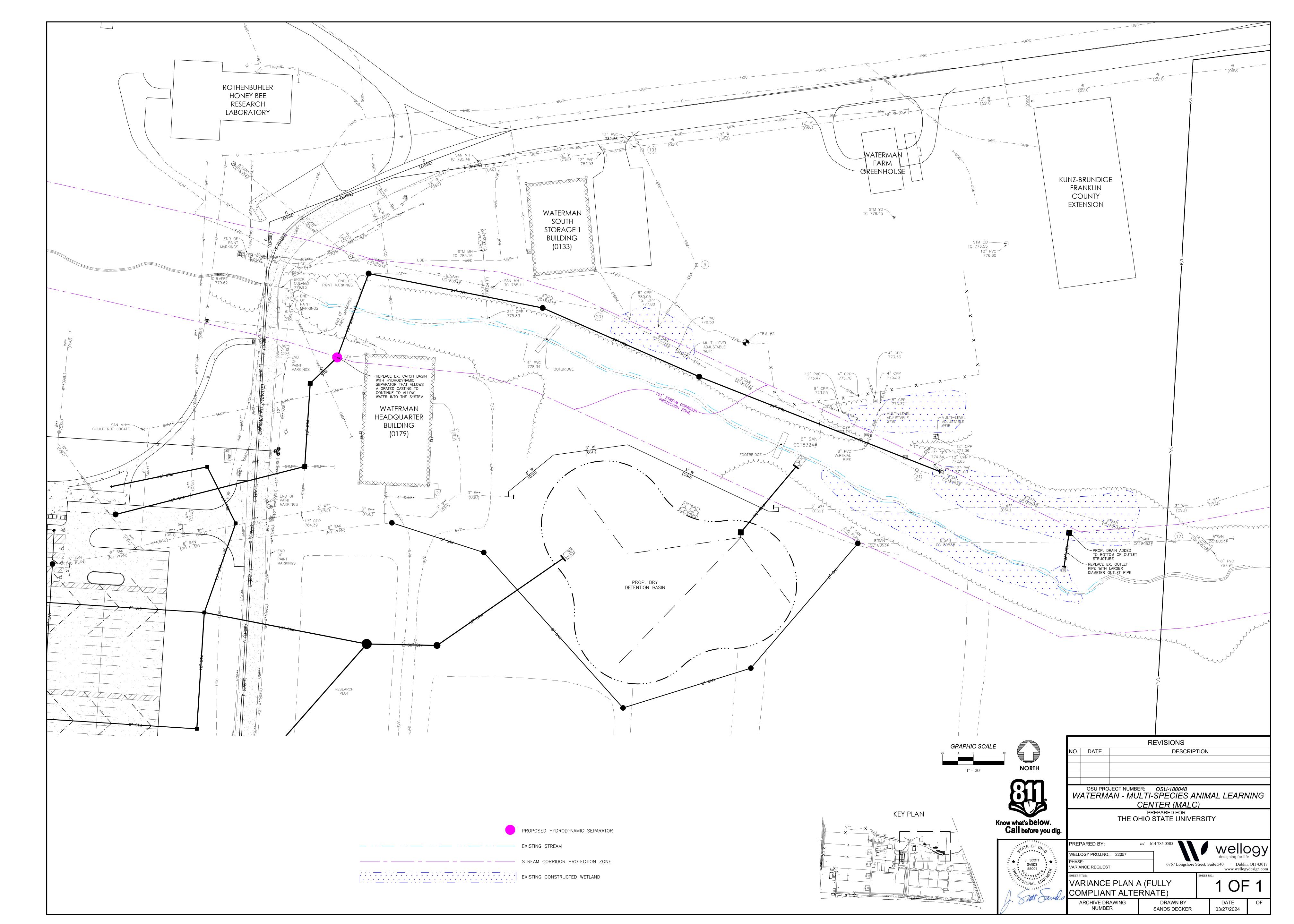
507 Main Street, Suite 203 Zanesville, OH 43701 740-450-1640 Natural grass cover between tree line north of stream and south of wetland cell (photo looking west)

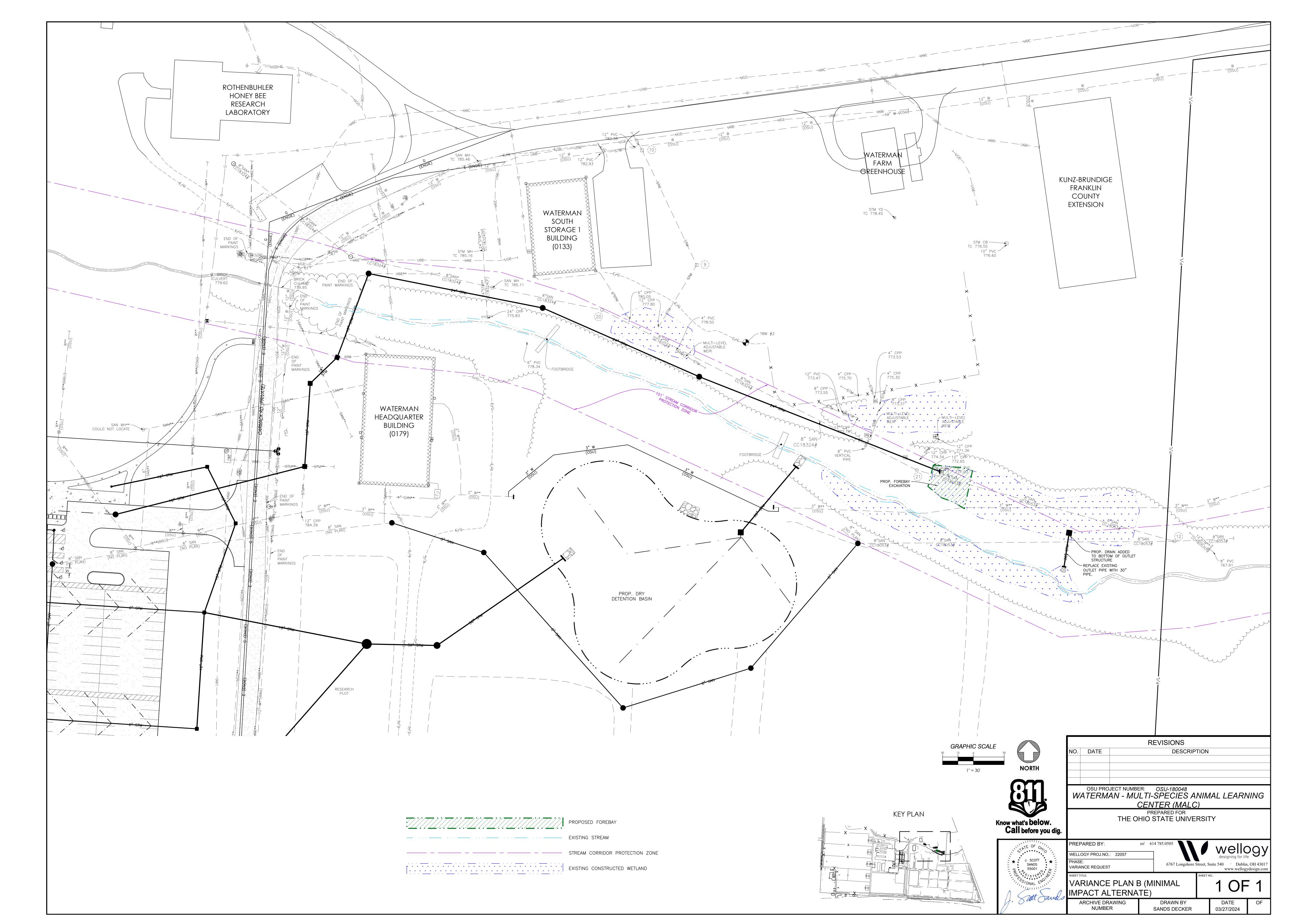


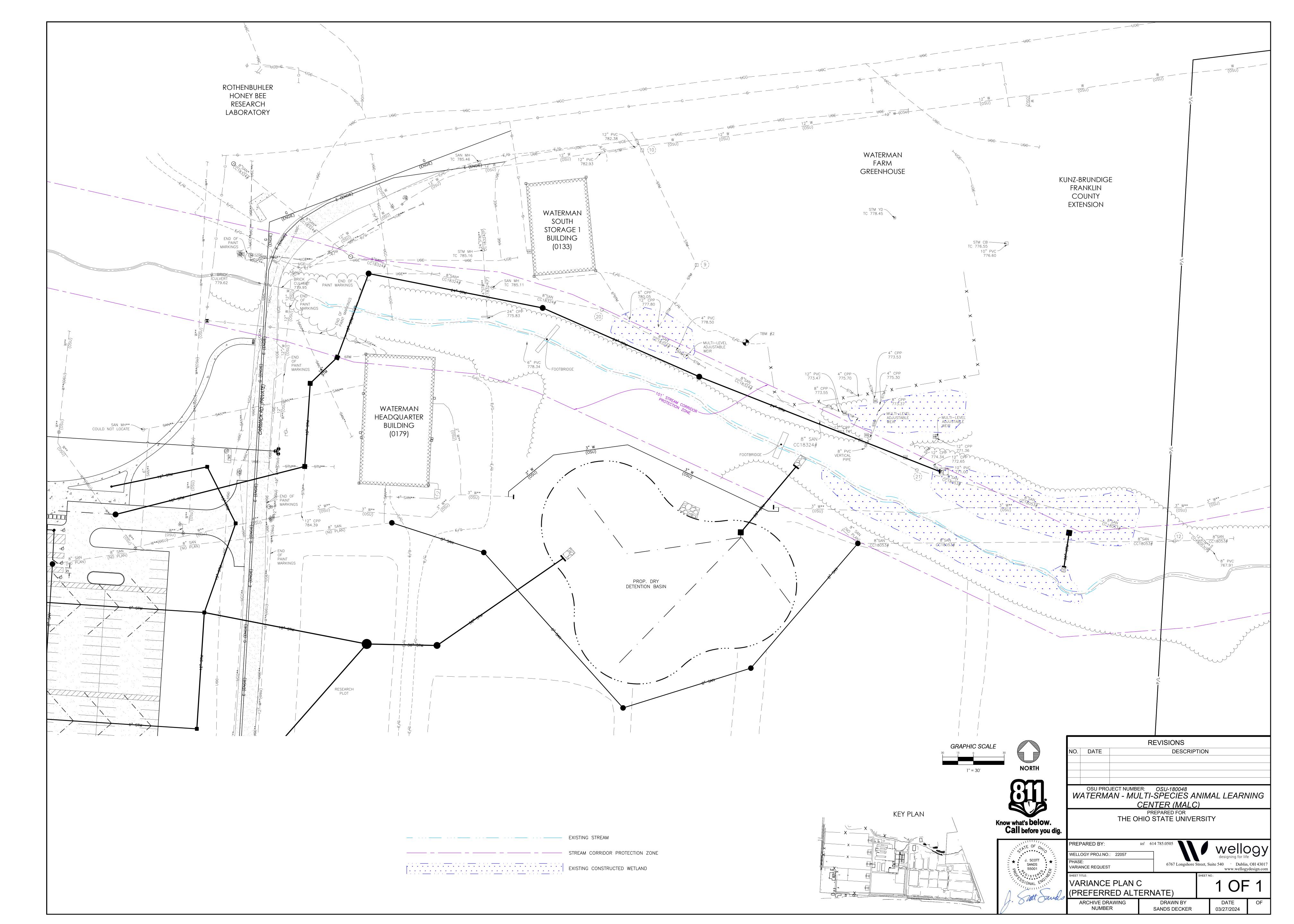


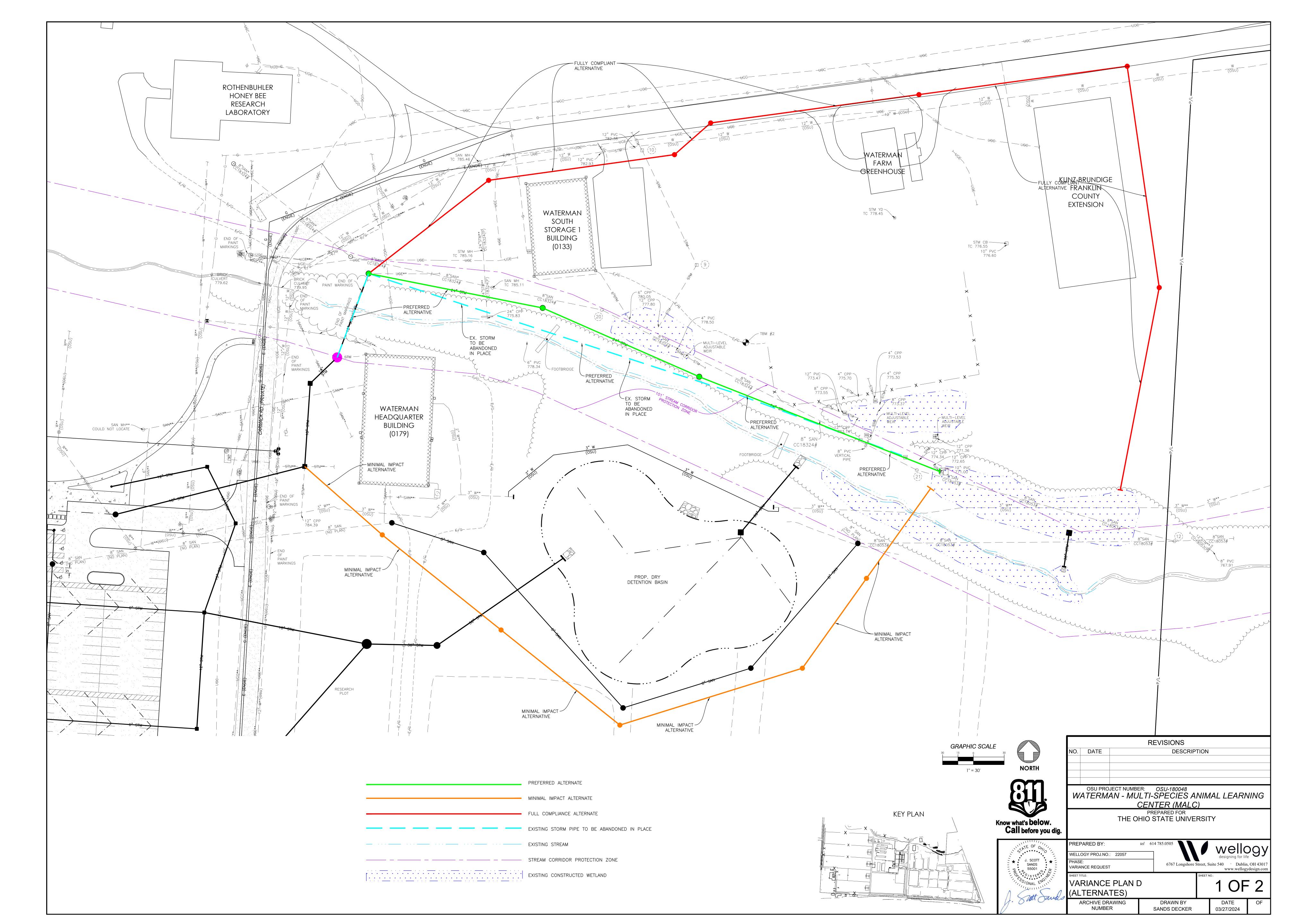
APPENDIX VARIANCE PLAN

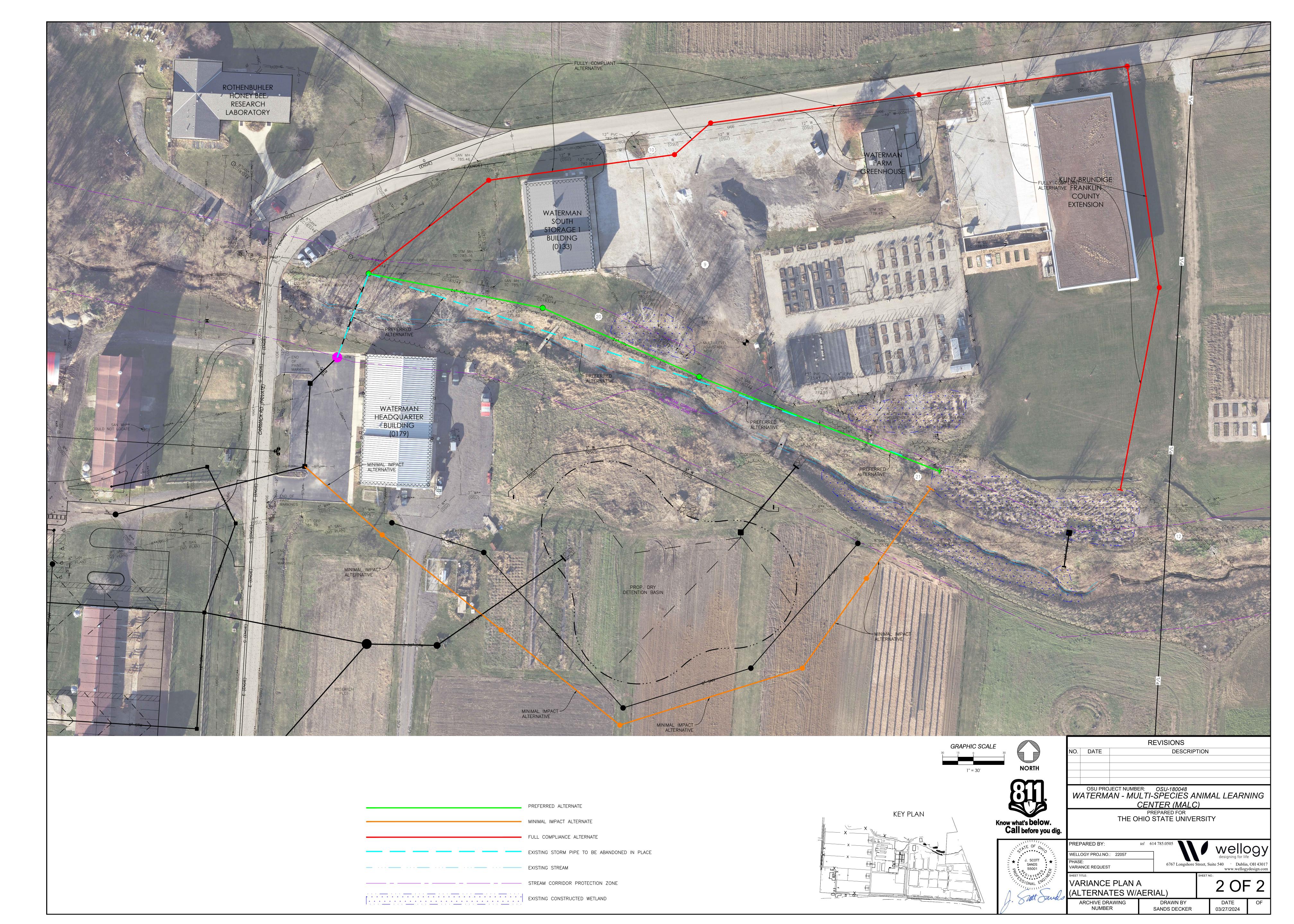














APPENDIX TRIBUTARY MAP





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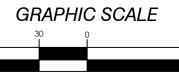
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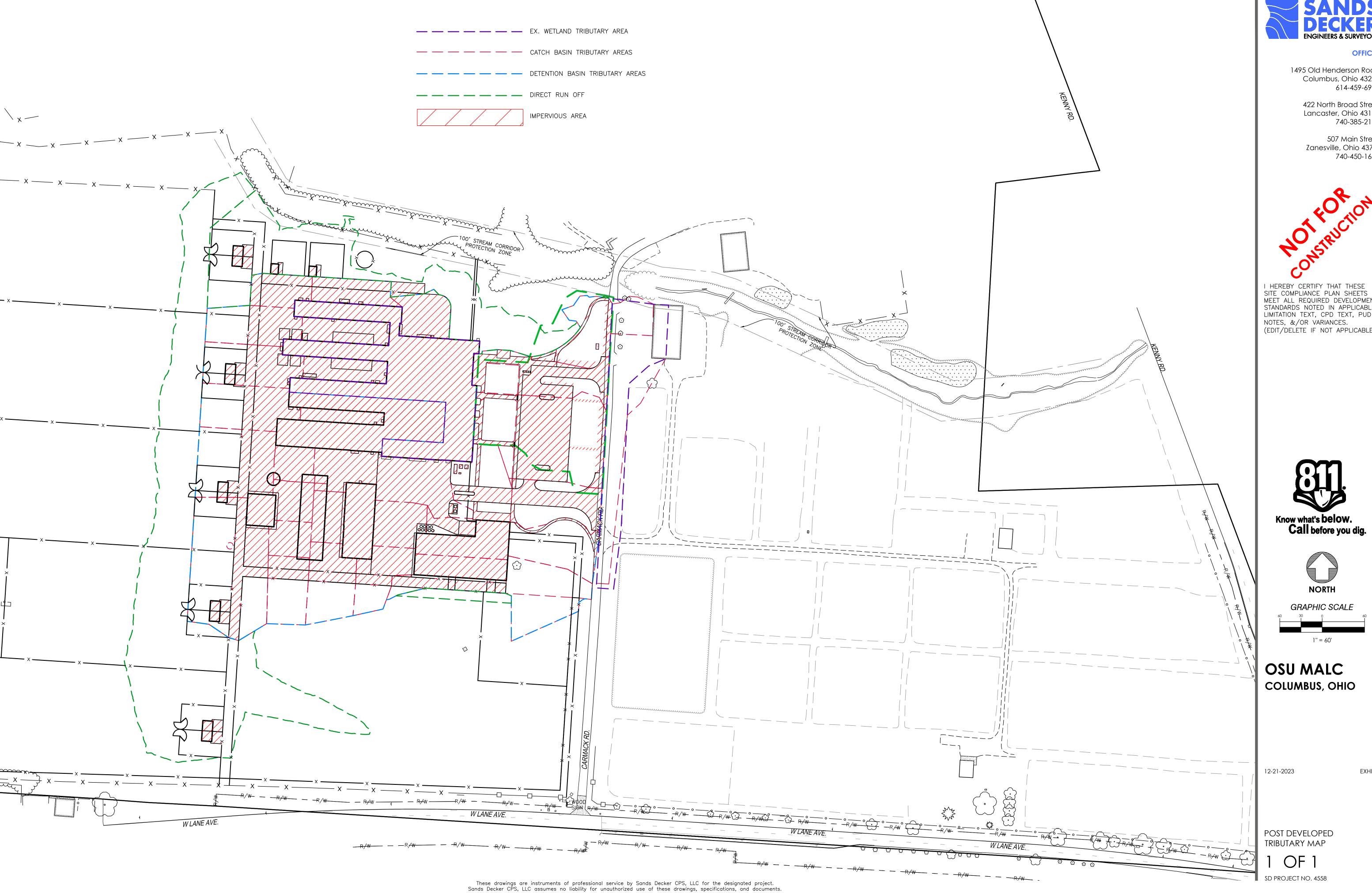




OSU MALC COLUMBUS, OHIO

SD PROJECT NO. 4558

These drawings are instruments of professional service by Sands Decker CPS, LLC for the designated project. Sands Decker CPS, LLC assumes no liability for unauthorized use of these drawings, specifications, and documents.





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I HEREBY CERTIFY THAT THESE SITE COMPLIANCE PLAN SHEETS
MEET ALL REQUIRED DEVELOPMENT
STANDARDS NOTED IN APPLICABLE
LIMITATION TEXT, CPD TEXT, PUD NOTES, &/OR VARIANCES. (EDIT/DELETE IF NOT APPLICABLE)





GRAPHIC SCALE

OSU MALC



APPENDIX

STONE ENVIRONMENTAL STREAM/WETLAND DELINEATION REPORT





PRELIMINARY JURISDICTIONAL WATERS DELINEATION

OSU MALC Storm Sewer Columbus, Franklin County, Ohio

Prepared for:

Sands Decker 1495 Old Henderson Road Columbus, Ohio 43220

Prepared by:

CAP-STONE & Associates, Inc., dba Stone Environmental Engineering and Science 3700 Corporate Drive, Suite 125 Columbus, Ohio 43231

> February 29, 2024 24-1205-014

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APPENDICES

Appendix A

Figure 1 – Project Location Map

Figure 2 – Soil Map

Figure 3 – USFWS NWI and USGS NHD Map

Figure 4 – FEMA NFHZ Map

Figure 5 – Jurisdictional Waters Map

Figure 6 – Photo Location Map

Appendix B

Photo Log

Appendix C

HHEI Form Wetland Determination Data Forms ORAM Forms

Appendix D

USFWS IPaC Species List ODNR Environmental Review Comments



1. INTRODUCTION

1.1 Project Location and Description

A Preliminary Jurisdictional Waters Delineation (PJWD) has been completed by CAP-STONE & Associates, Inc., dba Stone Environmental Engineering and Science (STONE) for the OSU MALC Storm Sewer project. The project study area is approximately 2 acres and is located at 2548 Carmack Road in Columbus, Franklin County, Ohio. (40.010535, -83.039466). The surrounding land use consists of cropland and commercial development. A Project Location Map (Figure 1) is included in Appendix A.

1.2 Limitations

The conclusions presented herein are professional opinions based on the information contained in this report and are specific to the study area investigated and information provided by others. The findings of this report are applicable and representative of the conditions encountered on the dates of this assessment and may not represent conditions subsequent to the field study. These conclusions represent STONE's professional opinion based on knowledge and experience with the United States Army Corps of Engineers (USACE) and Ohio Environmental Protection Agency (EPA) regulatory guidance documents and published methodology. These conclusions are subject to review and revision by the USACE and Ohio EPA.

2. REGULATORY BACKGROUND

Jurisdictional surface waters (e.g., streams, wetlands, ponds, lakes, etc.) are regulated by the USACE and Ohio EPA. Section 404 and Section 401 of the Clean Water Act (CWA) provide the framework for the aforementioned agencies to implement the regulatory programs.

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or certain types of excavation, which may result in more than incidental fallback material, within Waters of the United States (WOTUS). Section 404 grants the Secretary of the Army, through the Chief of Engineers, regulatory authority to issue permits for these actions. WOTUS include territorial seas and traditional navigable waters, tributaries, lakes, ponds, and impoundments of jurisdictional waters and adjacent wetlands. Wetlands are defined by the CWA as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 401 of the CWA requires any applicant requesting a CWA permit for activities resulting in a discharge to WOTUS to provide the federal permitting agency with a Section 401 Water Quality Certification (WQC) from the state. The 401 WQC ensures that the federal permit meets the state water quality standards. A federal permit cannot be granted unless a Section 401 WQC is applied for, and received, from the state. Within the State of Ohio, the Ohio EPA Division of Surface Water's 401 WQC Section is the regulatory agency for this certification. State laws and rules have been created in order to implement Section 401 and regulate impacts to WOTUS and waters of the state, which includes isolated wetlands.



According to Section 404 of the CWA, a permit must be acquired from the USACE to authorize discharge of dredge or fill material into WOTUS. The USACE has established several Nationwide Permits (NWPs) to expedite the permitting process for common discharges which have been determined to have minimal individual or cumulative impacts on the environment. Ohio EPA Section 401 water quality certifications have been pre-approved for the NWPs. The NWP process typically requires two to four months for completion. Several criteria/limitations are associated with NWPs and can be discussed in further detail if it is determined that the onsite jurisdictional waters will be impacted by future site development. If NWP limitations are exceeded, typically an individual Section 404/401 permit must be obtained. Surface water features that are determined to be isolated (not WOTUS) may be subject to Ohio laws and regulations (e.g., Ohio Revised Code, Section 6111 – Isolated Wetland Permitting).

3. LITERATURE REVIEW

3.1 Soils

The United States Department of Agriculture (USDA) Natural Resource Conversation Service (NRCS) soil survey data for the study area are listed below in Table 3-1. The Soil Map (Figure 2) is included in Appendix A.

Table 3-1: Soil Map Units Within the Study Area						
Soil Map Unit Symbol	Mapping Unit Name	Hydric Rating Percentage				
CrB	Crosby silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	1% to 32%				
MIC2	Miamian silty clay loam, 6 to 12 percent slopes, eroded	1% to 32%				

3.2 USGS Topography

The study area is depicted on the Project Location Map (Appendix A – Figure 1) which includes the United States Geological Survey (USGS) topographic mapping. The topography of the study area is relatively flat with the exception of the stream banks. Elevations range from approximately 766 feet above mean sea level (MSL) in the eastern portion of the study area to 788 feet above MSL in the western portion of the study area.

3.3 National Wetlands Inventory Mapping

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map displays riverine habitat (R4SBC) within the study area (Appendix A – Figure 3).

3.4 USGS NHD Mapping

The USGS National Hydrography Dataset (NHD) map depicts an intermittent stream within a majority of the study area that flows from west to east (Appendix A – Figure 3).



3.5 Ohio EPA Watershed & Designated Use Information

The study area is located within the Olentangy River Watershed (HUC 12: 050600011103). There are not any streams located within the study area that contain an Ohio EPA Aquatic Life Designated Use.

3.6 Floodplain Mapping

The Federal Emergency Management Agency (FEMA) National Flood Hazard Zones mapping does not depict any floodway or floodplain within the study area (Appendix A – Figure 4).

3.7 Threatened & Endangered Species State Listed Species

STONE requested an Ohio Department of Natural Resources (ODNR) environmental review to identify potential threatened and endangered (T&E) species that could be impacted by the project. ODNR provided comments on February 22, 2024, as summarized below:

- The study area is within the range of two state and federally endangered bat species: Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*); and, two state endangered bat species: little brown bat (*Myotis lucifugus*) and tricolored bat (*Perimyotis subflavus*). ODNR recommends seasonal tree clearing (October 1 through March 31) for trees that will be removed for the project.
- The project is within the range of the black-crowned night-heron (*Nycticorax nycticorax*), a state threatened bird. Suitable habitat includes wetlands, shallow aquatic habitats, and roosts in neighboring trees/shrubs (or on the ground near bodies of water/wetlands). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species. There are no ODNR records of this species near the project location, however, potential suitable habitat (wetlands) is located in the project area. If wetlands will be impacted during the nesting period, ODNR coordination is recommended to determine if options are available (e.g., species survey prior to construction) that may allow for construction during this timeframe.
- The project is within the range of the following mussel species:
 - o Federally Endangered
 - clubshell (*Pleurobema clava*)
 - rayed bean (Villosa fabalis)
 - northern riffleshell (*Epioblasma torulosa rangiana*)
 - snuffbox (*Epioblasma triquetra*)
 - purple cat's paw (Epioblasma o. obliquata)
 - o Federally Threatened
 - rabbitsfoot (Quadrula cylindrica cylindrica)
 - State Endangered
 - elephant-ear (*Elliptio crassidens crassidens*)
 - pocketbook (*Lampsilis ovata*)
 - long solid (*Fusconaia maculata maculate*)
 - washboard (*Megalonaias nervosa*)
 - Ohio pigtoe (*Pleurobema cordatum*)



- State Threatened
 - pondhorn (*Uniomerus tetralasmus*)
 - Salamander Mussel (Simpsonaias ambigua)
- The project is within the range of the following fish species:
 - State Endangered
 - goldeye (*Hiodon alosoides*)
 - shortnose gar (*Lepisosteus platostomus*)
 - Iowa darter (*Etheostoma exile*)
 - spotted darter (*Etheostoma maculatum*)
 - northern brook lamprey (*Ichthyomyzon fossor*)
 - tonguetied minnow (Exoglossum laurae)
 - popeye shiner (*Notropis ariommus*)
 - State Threatened
 - lake chubsucker (*Erimyzon sucetta*)
 - paddlefish (*Polyodon spathula*)
- The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat.
- The Natural Heritage Database (NHD) has records for the following species within one mile of the project area:
 - o Lark Sparrow (Chondestes grammacus) State Endangered
 - o Creek Heelsplitter (*Lasmigona compressa*) State Species of Concern
 - o Wavy-rayed Lampmussel (Lampsilis fasciola) State Species of Concern
 - o Elktoe (*Alasmidonta marginata*) State Species of Concern

Due to the potential of impacts to federally listed species, as well as to state listed species, ODNR recommends that this project be coordinated with the USFWS if impacts will not be avoided. The ODNR comments and NHD Map are included in Appendix D.

Federally Listed Species

STONE obtained information from the USFWS Information for Planning and Consultation (IPaC) website to review federally listed species that may be affected by the proposed project. According to the IPaC information, dated January 23, 2024, federally listed species with known or expected ranges within the project area include:

- Indiana bat Endangered
- Northern long-eared bat Endangered
- tricolored bat Proposed Endangered
- salamander mussel (Simpsonaias ambigua) Proposed Endangered
- monarch butterfly (*Danaus plexippus*) Candidate

No Critical Habitats were identified in the project area.



Suitable summer roosting habitat for the federally listed bats exists within the project area. If the project can adhere to the seasonal tree clearing timeframe (October 1 to March 31), it is anticipated that further bat studies will not be needed.

A copy of the IPaC letter (USFWS Project Code No. 2024-0039512), dated January 23, 2024, is included in Appendix D.

4. METHODOLOGY

STONE ecologists performed an on-site assessment of the study area on January 26, 2024. The study area is approximately 2 acres. A hand-held Global Positioning System (GPS) unit capable of submeter accuracy was used to record sampling points and determine boundaries of the aquatic resources.

The study area was evaluated using the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. Sampling points were collected for each wetland and surrounding upland areas. During the field review, the Ohio EPA's ORAM was used to evaluate the wetlands identified within the study area and the Primary Headwater Habitat Evaluation Index (HHEI) was used to evaluate streams with drainage areas less than one square mile and/or with pools less than 40 centimeters deep (Appendix C).

5. RESULTS

STONE identified 0.404 acres of emergent wetlands, 0.060 acres of a forested wetland, and 833 linear feet of a perennial stream in the study area. Wetland and stream details are summarized in Tables 5-1 and 5-2, respectively. The locations of the wetlands and streams are depicted on Figure 5 (Appendix A). No other surface water features were observed in the study area. Representative photographs of the wetlands, streams, and study area are included in Appendix B. Wetland data forms and qualitative habitat assessment forms (HHEI and ORAM) are included in Appendix C.

Table 5-1:	Table 5-1: Wetlands Identified within Study Area							
Wetland ID	Cowardin Habitat Classification ¹	ORAM Category (Score)	Latitude	Longitude	Jurisdiction	Acreage within Study Area		
W-1	PEM	1 (17)	40.010119	-83.037639	WOTUS	0.202		
W-2	PEM	1 (15)	40.010329	-83.038423	WOTUS	0.084		
W-3	PFO	1 (24)	40.010514	-83.039081	WOTUS	0.060		
W-4	PEM	1 (24)	40.009910	-83.037860	WOTUS	0.118		
TOTAL						0.464		

¹PEM = Palustrine Emergent, PFO = Palustrine Forested



W-1 is an emergent wetland (PEM) located in the eastern portion of the study area and appeared to be hydrologically connected to WOTUS (S-1) via a culvert. Dominant plant species included narrow-leaf cat-tail (*Typha angustifolia*), sweet wood-reed (*Cinna arundinacea*), and late goldenrod (*Solidago gigantea*). The ORAM score for W-1 was 17 (category 1).

W-2 is an emergent wetland (PEM) located northwest of W-1 and appeared to be hydrologically connected to WOTUS (S-1) via a culvert. Dominant plant species included common reed (*Phragmites australis*) and narrow-leaf cat-tail. The ORAM score for W-2 was 15 (category 1).

Wetland W-3 (PFO) is located in the northcentral portion of the study area and appeared to be hydrologically connected to WOTUS (S-1) via a culvert. Dominant tree species included black willow (*Salix nigra*) and eastern cottonwood (*Populus deltoides*). The ORAM score for W-3 was 24 (category 1).

W-4 is an emergent wetland (PEM) located in the southeast portion of the study area and appeared to be hydrologically connected to WOTUS (abuts S-1). Dominant plant species included blue joint (*Calamagrostis canadensis*), late goldenrod, and lamp rush (*Juncus effusus*). The ORAM score for W-4 was 24 (category 1).

Table 5-2: Streams Identified within Study Area							
Stream ID	Flow Regime ¹	HHEI Class (Score)	Latitude	Longitude	Average Width (Feet)	Length within Study Area (Feet) ²	Area (Acres)
S-1	Perennial (RPW)	Modified Class II (62)	40.01030	-83.03882	4.0	833	0.076
	1				TOTAL	833	0.076

¹RPW – Relatively Permanent Water, NRPW – Non-Relatively Permanent Water

S-1 is generally located in the central portion of the study area, flows from west to east/southeast, and continues flowing offsite. The stream substrate is predominantly composed of gravel, sand, and silt. The S-1 HHEI score was 62(Modified, Class II perennial stream).

6. CONCLUSIONS

STONE identified 833 linear feet of a perennial stream, 0.404 acres of emergent wetlands, and 0.060 acres of a forested wetland in the study area. No other surface water features were observed during the on-site assessment.

Since the USACE has authority to determine and/or verify the geographical boundaries of wetlands and other WOTUS, this investigation is termed "preliminary." USACE verification (also referred to as a Jurisdictional Determination "JD") may be required for completion of CWA Section 404, Section 401, and/or isolated wetland permitting. It is the responsibility of any party that intends to discharge dredge or fill material into jurisdictional waters of the U.S. to comply with all applicable regulations.



²Streams may extend outside the study area

7. REFERENCES

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APPENDIX A



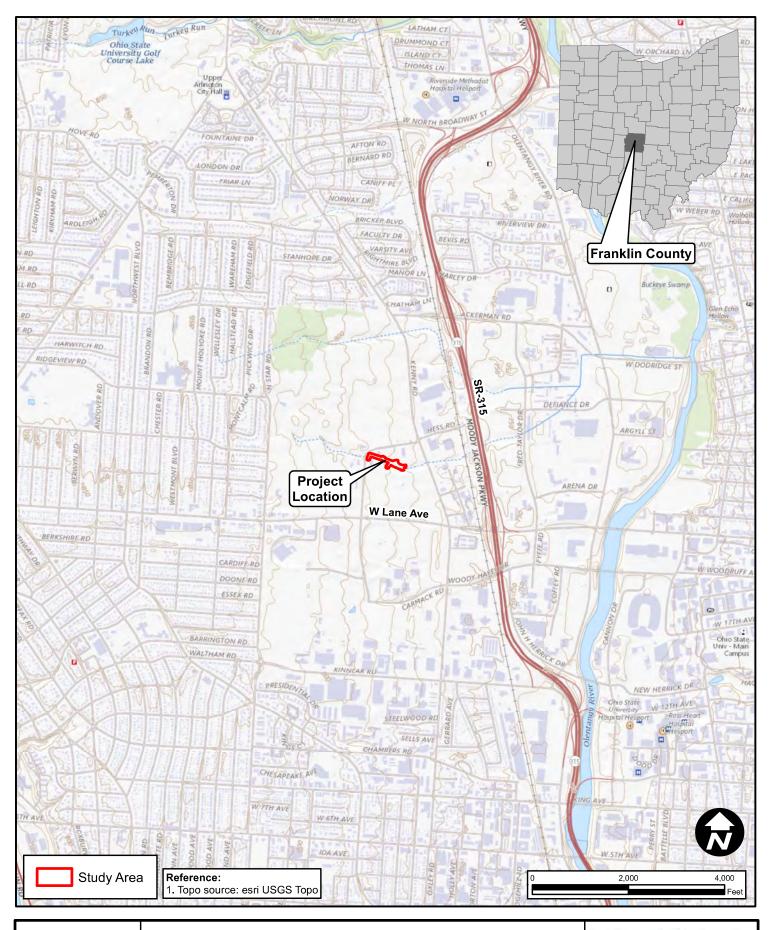


Figure 1

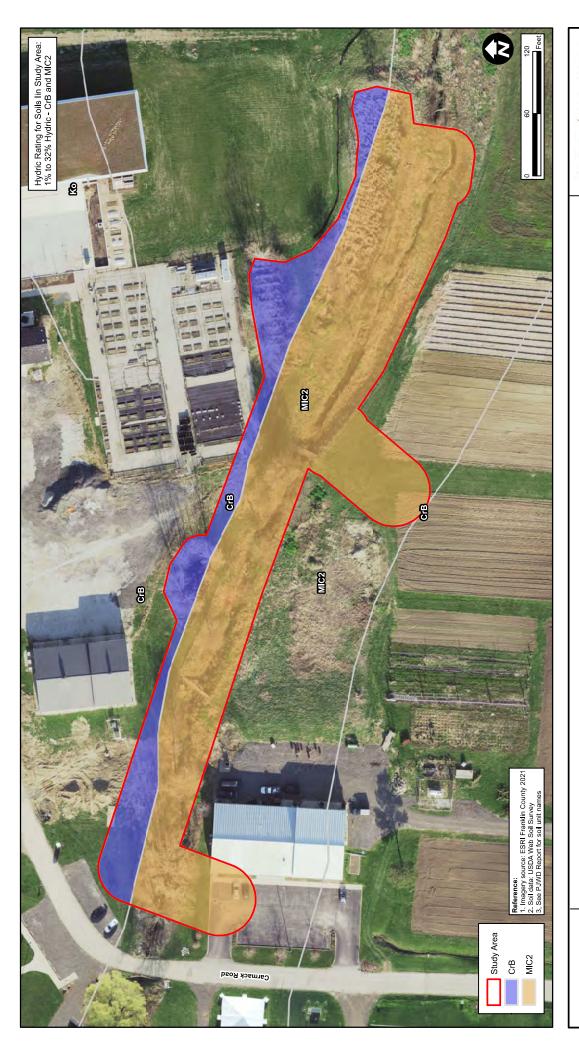
Project: 24-1205-014

PROJECT LOCATION MAP

OSU MALC Storm Sewer Columbus, Franklin County, Ohio



Date: February 13, 2024



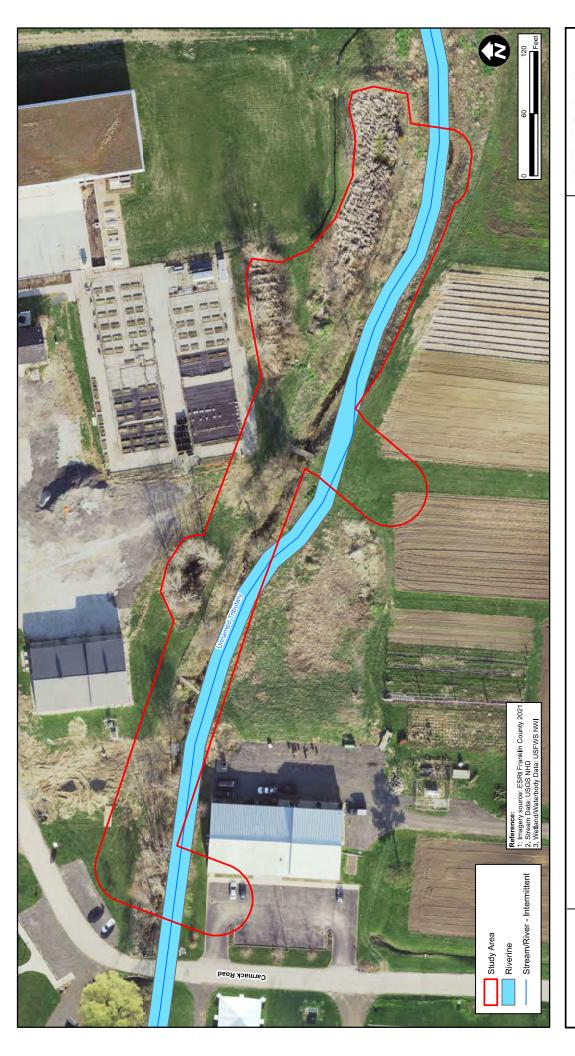
SOIL MAP

OSU MALC Storm Sewer Columbus, Franklin County, Ohio



Date: February 13, 2024

Project: 24-1205-014



USFWS NWI AND USGS NHD MAP

OSU MALC Storm Sewer Columbus, Franklin County, Ohio



Date: February 13, 2024

Project: 24-1205-014



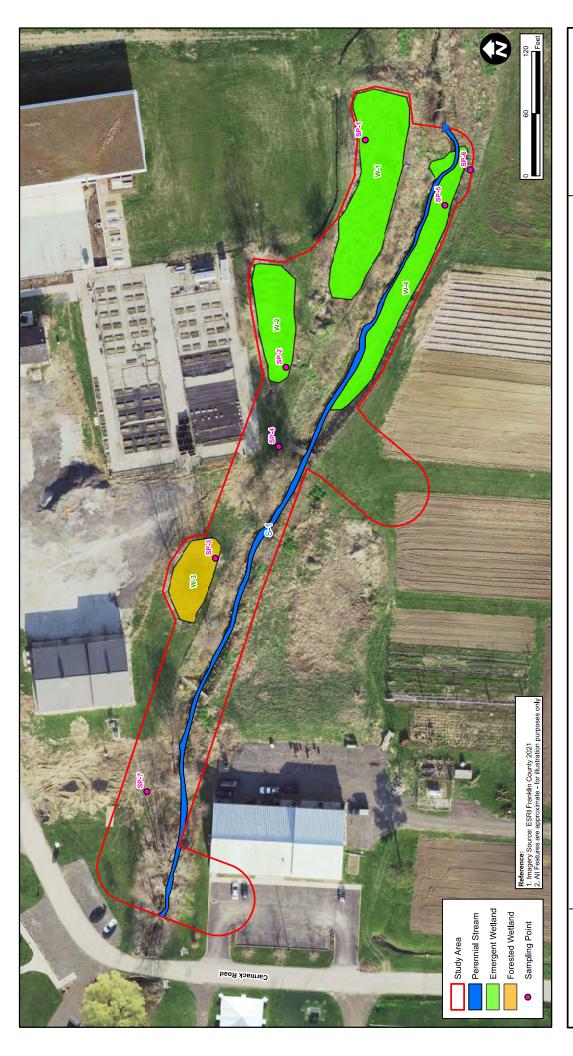
FEMA NFHZ MAP

OSU MALC Storm Sewer Columbus, Franklin County, Ohio



Date: February 13, 2024

Project: 24-1205-014



JURISDICTIONAL WATERS MAP

OSU MALC Storm Sewer Columbus, Franklin County, Ohio



Date: February 13, 2024

Project: 24-1205-014

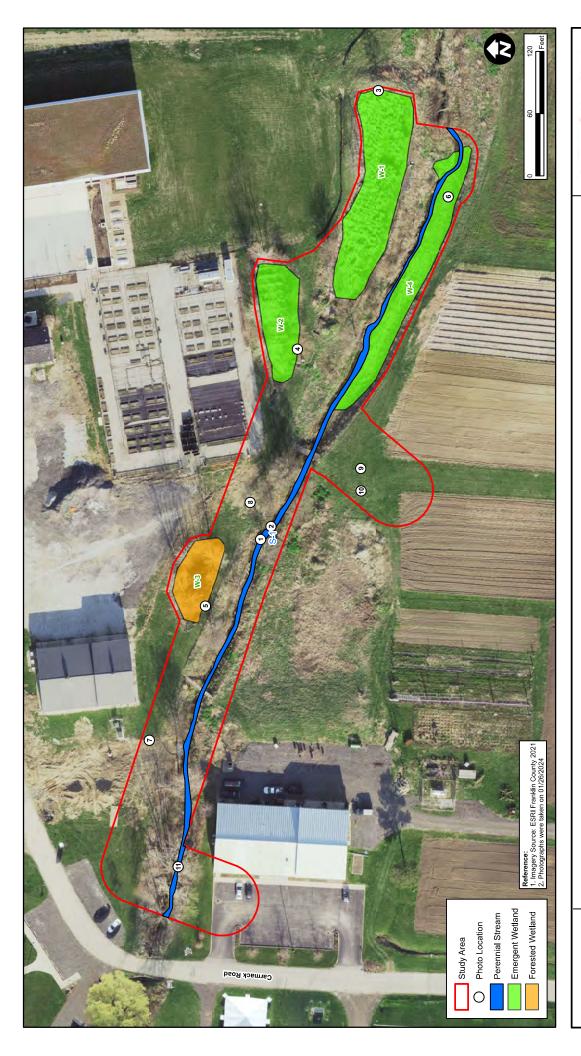


PHOTO LOCATION MAP

OSU MALC Storm Sewer Columbus, Franklin County, Ohio



Date: February 29, 2024

Figure 6

Project: 24-1205-014

APPENDIX B





01 – Upstream view of S-1.



02 – Downstream view of S-1.





03 – W-1 (PEM) looking west.



04 – W-2 (PEM) looking northeast.





05 – W-3 (PFO) looking northeast.



06 – W-4 (PEM) looking west.





07 – View of the northwest portion of the study area.



08 – Study area near S-1 and W-3.





09 – Cropland and mowed lawn in the southern portion of the study area.



10 – Mowed lawn near S-1 in the southern portion of the study area.





11 – Upstream view of S-1, existing storm sewer line in the background.



APPENDIX C





Headwater Habitat Evaluation Index Field Form HHEI Score (sum of metrics 1+2+3)

62	
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	NAME/LOCATION_OSU MALC Storm Sewer/C	Columbus, Franklin County	Ohio		
SITE N	NUMBERS-1 RIVER BASIN	Mouth Olentangy River	RIVER CODE02-400-000	DRAINAGE AREA (mi²)	0.38
LENG [.]	TH OF STREAM REACH (ft) 200.00	LAT_40.01030	LONG <u>-83.03882</u>	RIVER MILE	1.50
DATE	01/26/24 SCORER J. Brennan & A. E	Brown COMMENTS _			
IOTE:	Complete All Items On This Form	- Refer to "Headwa	ter Habitat Evaluation In	dex Field Manual" for Ins	structions
TREA	AM CHANNEL MODIFICATIONS:	NONE / NATURAL CHA	NNEL 7 RECOVERED F	ECOVERING RECENT OR	NO RECOVER
	BLDR SLABS [16 pts] BOULDER (>256 mm)[16 pts] BEDROCK [16 pts] COBBLE (65-256 mm)[12 pts] GRAVEL (2-64 mm)[9 pts]	ant substrate types for RCENT 0% 2% 0% 10% 35% 30% (A)	und (Max of 8). Final metric s SILT [3 pt] LEAF PACK/WOODY DEE FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts]	PERCENT 15% BRIS [3 pts] 0% 0% 0% 3%	HHEI Metric Points Substrate Max = 40 22 A + B
2.	Maximum Pool Depth (<i>Measure the <u>n</u></i>				Pool Dept
z. [7]	time of evaluation. Avoid plunge pools f		torm water pipes) (Check	ONLY one box):	Max = 30
H	> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	<u> </u>	5 cm - 10 cm [15 pts] < 5 cm [5pts]		
	> 10 - 22.5 cm [25 pts]		NO WATER OR MOIST O		20
	COMMENTS		MAXIMUM POOL DI	EPTH (centimeters): 35	
3.	BANK FULL WIDTH (Measured as the	e average of 3 - 4 mea	asurements) (Check ONL	Y one box):	Bankfull
	> 4.0 masterns (> 401) [20 mts]		> 1.0 m - 1.5 m (> 3' 3" - 4	4' 8") [15 pts]	Width
님	> 4.0 meters (> 13') [30 pts]				
	> 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		≤ 1.0 m (≤ 3' 3") [5 pts]		Max=30
	> 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts]			ILL WIDTH (meters)	20
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS		AVERAGE BANKFL	TEL WIDTH (meters)	20
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI	PLAIN QUALITY 🛨	AVERAGE BANKFL must also be completed NOTE: River Left (L) and Righ	nt (R) as looking downstream	20
☐ ✓	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI	PLAIN QUALITY ★I	AVERAGE BANKFL must also be completed NOTE: River Left (L) and Righ	nt (R) as looking downstream	20
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH	PLAIN QUALITY ★1 FLOODPLA	AVERAGE BANKFL must also be completed NOTE: River Left (L) and Righ	nt (R) as looking downstream	20
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH L R (Per Bank)	FLOODPLA L R Mature Fo Immature	AVERAGE BANKFL I must also be completed NOTE: River Left (L) and Right AIN QUALITY (Most Predomin L rest, Wetland Forest, Shrub or Old Field	nt (R) as looking downstream on the per Bank) R	20
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	FLAIN QUALITY ★ I FLOODPLA L R Mature Fo Immature Residentia	AVERAGE BANKFU must also be completed NOTE: River Left (L) and Righ AIN QUALITY (Most Predomin L rest, Wetland Forest, Shrub or Old Field I, Park, New Field	nt (R) as looking downstream and per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row C	20 crop
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	FLOODPLA L R Mature Fo Immature	AVERAGE BANKFU must also be completed NOTE: River Left (L) and Righ AIN QUALITY (Most Predomin L rest, Wetland Forest, Shrub or Old Field I, Park, New Field	nt (R) as looking downstream nant per Bank) R Conservation Tillage Urban or Industrial	20 crop
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS	FLAIN QUALITY * FLOODPLA L R Mature Fo Immature Residentia Fenced Pa	AVERAGE BANKFL must also be completed NOTE: River Left (L) and Righ AIN QUALITY (Most Predomin L rest, Wetland Forest, Shrub or Old Field I, Park, New Field asture	nt (R) as looking downstream and per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row C	20 crop
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Subsurface flow with isolated poor	FLAIN QUALITY FLOODPLA L R Mature Fo Immature Residentia Fenced Pa	AVERAGE BANKFL must also be completed NOTE: River Left (L) and Righ AIN QUALITY (Most Predomin Lest, Wetland Forest, Shrub or Old Field I, Park, New Field asture LY one box):	at (R) as looking downstream and per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row Construction Mining or Construction	20 Grop
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation o	FLAIN QUALITY * FLOODPLA L R Mature Fo Immature Residentia Fenced Pa Fuluation) (Check ONL ols (interstitial)	AVERAGE BANKFL I must also be completed NOTE: River Left (L) and Right AIN QUALITY (Most Predomin Lefest, Wetland Forest, Shrub or Old Field I, Park, New Field Isture AY one box): Moist Channel, iso Dry channel, no w	at (R) as looking downstream anant per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row Construction Mining or Construction Dated pools, no flow (intermitted ater (ephemeral)	20 Grop
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Subsurface flow with isolated poor	FLAIN QUALITY * FLOODPLA L R Mature Fo Immature Residentia Fenced Pa Fuluation) (Check ONL ols (interstitial)	AVERAGE BANKFL I must also be completed NOTE: River Left (L) and Right AIN QUALITY (Most Predomin Lefest, Wetland Forest, Shrub or Old Field I, Park, New Field Isture AY one box): Moist Channel, iso Dry channel, no w	at (R) as looking downstream anant per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row Construction Mining or Construction Dated pools, no flow (intermitted ater (ephemeral)	20 Grop
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation of Ev	FLAIN QUALITY FLOODPLA L R Mature Fo Immature Residentia Fenced Pa Pluation) (Check ONL Ols (interstitial) Der 61 m (200 ft) of characters	AVERAGE BANKFL I must also be completed NOTE: River Left (L) and Right AIN QUALITY (Most Predomin Lefest, Wetland Forest, Shrub or Old Field I, Park, New Field Issture Annel (Check ONLY one bound of the complete of	at (R) as looking downstreamy nant per Bank) R Conservation Tillage Urban or Industrial Open Pasture, Row Construction Mining or Construction Diated pools, no flow (intermitted ater (ephemeral) X): 3.0 >3	crop n ent)

May 2020 Revision Page 1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEIPERFORMED? Yes No QHEISco	ore (If Yes, Attach Completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
☑ WWH Name: Olentangy River	Distance from Evaluated Stream 7,000+ feet
CWH Name:	Distance from Evaluated Stream
BWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	G THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.
USGS Quadrangle Name: Northwest Columbus	NRCS Soil Map Page: NRCS Soil Map Stream Order:
County: Franklin	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precip	oitation: 01/25/2024 Quantity: 0.51
Photo-documentation Notes:	
Elevated Turbidity? (Y/N): N Canopy (% open)	<u>.: 35 </u>
Were samples collected for water chemistry? (Y/N): N	Lab Sample # or ID (attach results):
Field Measures:Temp (°C) Dissolved Oxygen (r	mg/l) pH (S.U.) Conductivity (umhos/cm)
Is the sampling reach representative of the stream (Y/N) _	Y If not, explain:
Additional comments/description of pollution impacts:	
Additional comments/description of policition impacts.	
BIOLOGI	CAL OBSERVATIONS
•	all observations below)
Fish Observed? (Y/N) $ ule{N}$ Species observed (if known	wn):
	erved (if known):
Salamanders Observed? (Y/N) N Species observed	(if known):
Aquatic Macroinvertebrates Observed? (Y/N) N Spe	
3 3 3,	
DRAWING AND NARRATIVE DESC	CRIPTION OF STREAM REACH (This must be completed)
Include important landmarks and other features of	of interest for site evaluation and a narrative description of the stream's location
•	
1	the rame of
(Overver 1

Bunder Deg Arthreim More Silly

Poul Sondy

Field D

May 2020 Revision Page 2

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: OSU MALC Storm Sewer		City/Cou	nty: Columb	ous/Franklin	Sampling Date:	01/26/2024
Applicant/Owner: The Ohio State University				State: OH	Sampling Point:	1
Investigator(s): J. Brennan & A. Brown (STONE)		Section, 7	Γownship, Ra	ange: T1N R18W		
Landform (hillside, terrace, etc.): Depression			Local relief (concave, convex, none)	: None	
Slope (%):1		Long:	83.037639		Datum: NAD83	
Soil Map Unit Name: Crosby silt loam, Southern Ohio	o Till Plain, 2 to	6 percent sl	opes	NWI class	ification: N/A	
Are climatic / hydrologic conditions on the site typical	for this time of	year?	Yes X	No (If no, ex	plain in Remarks.)	
Are Vegetation N , Soil N , or Hydrology N	_significantly di	sturbed? A	ا are "Normal	Circumstances" present	? Yes <u>X</u> N	<u> </u>
Are Vegetation N, Soil N, or Hydrology N	_naturally probl	ematic? (If needed, ex	xplain any answers in Re	emarks.)	
SUMMARY OF FINDINGS – Attach site n	nap showin	g samplir	ng point lo	ocations, transects	s, important fea	itures, etc.
	No	1	e Sampled A n a Wetland		No	
Wetland Hydrology Present? Yes X	No					
Remarks: W-1 PEM						
VEGETATION – Use scientific names of p						
<u>Tree Stratum</u> (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test wo	orksheet:	
1. 2.				Number of Dominant Are OBL, FACW, or	•	2 (A)
3. 4.				Total Number of Don Across All Strata:	ninant Species	3 (B)
5.	=	Total Cover		Percent of Dominant Are OBL, FACW, or	•	6.7% (A/B)
Sapling/Shrub Stratum (Plot size: 15	_)					
1. Juglans nigra	5	Yes	FACU_	Prevalence Index w		. In
2. 3.				Total % Cover of OBL species 7		70 70
4.				· —		70
5.					0 x 3 =	0
	5 =	Total Cover		FACU species	5 x 4 =	20
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0
1. Typha angustifolia	70	Yes	OBL	Column Totals: 1	10 (A)	160 (B)
2. Cinna arundinacea	25	Yes	FACW	Prevalence Index	= B/A =1.45	5
3. Solidago gigantea	10	<u>No</u>	FACW			
4				Hydrophytic Vegeta		
5.				I —	r Hydrophytic Veget	ation
6	_			X 2 - Dominance T X 3 - Prevalence Ir		
8					ll Adaptations ¹ (Prov	ide supporting
0					ks or on a separate	
10.	_				rophytic Vegetation	
	105 =	 Total Cover		¹ Indicators of hydric s		
Woody Vine Stratum (Plot size:	_)			be present, unless di		
1 2.				Hydrophytic		
	₌	 Total Cover		Vegetation Present? Yes	_X_ No	
Remarks: (Include photo numbers here or on a sep				1		
	onoon,					

SOIL Sampling Point: ____1

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

Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	<u> </u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 4/2	95	10YR 4/4	5	С	М	Loamy/Clayey	Distinct redox concentrations
		·						
		· — ·						
		· <u></u>						
¹ Type: C=C	oncentration, D=Dep	letion RM:	=Reduced Matrix N	 AS=Mas	ked Sand		² l ocation	: PL=Pore Lining, M=Matrix.
Hydric Soil		notion, rtivi	-reduced Matrix, is	no mas	ica Gari	a Oranio		s for Problematic Hydric Soils ³ :
Histosol			Sandy Gle	ved Mat	riv (S4)			t Prairie Redox (A16)
	pipedon (A2)		Sandy Red					Manganese Masses (F12)
Black Hi			Stripped M					Parent Material (F21)
	n Sulfide (A4)		Dark Surfa		<i>J</i>)			Shallow Dark Surface (F22)
	Layers (A5)		Loamy Mu	` '	oral (F1)			r (Explain in Remarks)
2 cm Mu	. , ,		Loamy Gle	•	` '			(Explain in Nemarks)
	Below Dark Surfac	₂ (Δ11)	X Depleted N					
	irk Surface (A12)	G (A11)	Redox Dar	•			³ Indicator	s of hydrophytic vegetation and
	lucky Mineral (S1)		Depleted [` '	`		nd hydrology must be present,
	cky Peat or Peat (S	3)	Redox De		, ,	,		s disturbed or problematic.
	``_	<u> </u>		310331011	3 (1 0)	-	41103	3 distarbed of problematic.
	Layer (if observed):							
Type:							Ukadala Oali Basasat	O V V N-
Depth (ir	icnes):						Hydric Soil Present	? Yes X No
Remarks:								
HYDROLC	GY							
Wetland Hy	drology Indicators:							
Primary Indi	cators (minimum of	one is requ	ired; check all that	apply)			<u>Secondar</u>	y Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Lea	aves (B9)		Surfa	ce Soil Cracks (B6)
X High Wa	ter Table (A2)		Aquatic Fa	iuna (B1	3)		Drain	age Patterns (B10)
X Saturation	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)
Water M	arks (B1)		Hydrogen			•		ish Burrows (C8)
Sedimer	t Deposits (B2)		Oxidized F	Rhizosph	eres on l	Living R	oots (C3) Satur	ation Visible on Aerial Imagery (C9)
	osits (B3)		Presence					ed or Stressed Plants (D1)
	t or Crust (B4)		Recent Iro			lled Soil	` ' —	norphic Position (D2)
	osits (B5)		Thin Muck				_X_FAC-	Neutral Test (D5)
	on Visible on Aerial I				. ,			
Sparsely	Vegetated Concave	e Surface (l	38) Other (Exp	olain in F	Remarks)	ı		
Field Obser	vations:							
Surface Wat	er Present? Ye	es X	No	Depth (i	nches): _	12		
Water Table	Present? Ye	es X	No	Depth (i	nches): _	0		
Saturation P	resent? Ye	es X	No	Depth (i	nches): _	0	Wetland Hydrolog	gy Present? Yes X No
(includes ca	oillary fringe)							
Describe Re	corded Data (stream	gauge, m	onitoring well, aeria	l photos	, previou	s inspec	ctions), if available:	
Remarks:								

ENG FORM 6116-7, JUL 2018Midwest – Version 2.0

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Applicant/Owner: The Ohio State University Investigator(s): J. Brennan & A. Brown (STONE) Landform (hillside, terrace, etc.): Depression	Section, Towns	State: OH	Sampling Point: 2	
	Section, Towns			
Landform (hillside terrace etc.): Depression		ship, Range: T1N R18W		
Landionn (misido, terraco, etc.). Depression	Local	I relief (concave, convex, none)	None	
Slope (%):1	Long: <u>-83.03</u>	38423	Datum: NAD83	
Soil Map Unit Name: Crosby silt loam, Southern Ohio Till Plain, 2	o 6 percent slopes	NWI class	ification: N/A	
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes	X	plain in Remarks.)	
Are Vegetation \underline{N} , Soil \underline{N} , or Hydrology \underline{N} significantly	disturbed? Are "N	Normal Circumstances" present	? Yes X No	
Are Vegetation N , Soil N , or Hydrology N naturally pro	blematic? (If nee	eded, explain any answers in Re	emarks.)	
SUMMARY OF FINDINGS – Attach site map showi	ng sampling po	oint locations, transects	s, important features, e	etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sam	npled Area		
Hydric Soil Present? Yes X No	within a W	Vetland? Yes X	No	
Wetland Hydrology Present? Yes X No No				
Remarks: W-2 PEM				
VV-2 FEIVI				
VEGETATION – Use scientific names of plants.				
Absolute	Dominant Indi	icator		
Tree Stratum (Plot size: 30) % Cover		Dominance Test wo		
1. Populus deltoides 50	Yes F	Number of Dominant Are OBL, FACW, or	•	4)
2. 3.		Total Number of Don		٠,
4.		Across All Strata:	3 (B	3)
5		Percent of Dominant	•	
50 (District Object of Obj	=Total Cover	Are OBL, FACW, or	FAC: <u>100.0%</u> (A	√B)
Sapling/Shrub Stratum (Plot size: 15) 1. Acer negundo 5	Yes F	FAC Prevalence Index w	orkshoot:	
2.	103	Total % Cover of		
3.		OBL species 1	0 x 1 = 10	
4.		FACW species 6	35 x 2 = 130	
5	· 		55 x 3 = 165	
Userla Christiana (Distriction 5	=Total Cover		0 x 4 = 0	
Herb Stratum (Plot size: 5) 1. Phragmites australis 65	Yes FA		$\frac{0}{30}$ x 5 = $\frac{0}{305}$ (B)	۲۱
2. Typha angustifolia 10		DBL Prevalence Index	` <i>`</i> `	.,
3.				
4		Hydrophytic Vegeta		
5		— I — ·	r Hydrophytic Vegetation	
6		X 2 - Dominance T X 3 - Prevalence Ir		
8			I Adaptations ¹ (Provide suppo	rtino
9.			ks or on a separate sheet)	
10		Problematic Hyd	rophytic Vegetation ¹ (Explain)	1
75	=Total Cover	· · · · · · · · · · · · · · · · · · ·	soil and wetland hydrology mu	ıst
Woody Vine Stratum (Plot size:)		be present, unless di	sturbed or problematic.	
1		Hydrophytic		
	=Total Cover	Vegetation Present? Yes	X No	
Remarks: (Include photo numbers here or on a separate sheet.)		1		

SOIL Sampling Point: 2

	• •	-				ator or o	confirm the absence	of indicators.)
Depth	Matri			x Featur		. 2	_	
(inches)	Color (moist)		Color (moist)	<u></u> %	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 4/2	90	10YR 4/4	10	<u>C</u>	M	Loamy/Clayey	Distinct redox concentrations
	-							
¹ Type: C=Co	oncentration, D=[epletion, RM	Reduced Matrix, I	MS=Mas	ked Sand	d Grains	. ² Location	n: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicato	rs for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	st Prairie Redox (A16)
Histic Ep	oipedon (A2)		Sandy Re	dox (S5)			Iron-	Manganese Masses (F12)
Black His	stic (A3)		Stripped N	/latrix (Se	3)		Red	Parent Material (F21)
	n Sulfide (A4)		Dark Surfa				Very	Shallow Dark Surface (F22)
Stratified	l Layers (A5)		Loamy Μι	icky Min	eral (F1)		Othe	r (Explain in Remarks)
2 cm Mu	ick (A10)		Loamy Gle	eyed Ma	trix (F2)			
Depleted	d Below Dark Surf	ace (A11)	X Depleted I	Matrix (F	3)		_	
	ark Surface (A12)		Redox Da		` '			rs of hydrophytic vegetation and
I — ·	lucky Mineral (S1		Depleted I)		and hydrology must be present,
5 cm Mu	icky Peat or Peat	(S3)	Redox De	pression	s (F8)		unles	ss disturbed or problematic.
Restrictive I	Layer (if observe	d):						
Type:								
Depth (in	nches):						Hydric Soil Presen	t? Yes <u>X</u> No
Remarks:								
HYDROLO)GY							
Wetland Hyd	drology Indicato	rs:						
Primary India	cators (minimum	of one is requi	red; check all that	apply)			<u>Seconda</u>	ry Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Lea	aves (B9)		Surfa	ace Soil Cracks (B6)
X High Wa	iter Table (A2)		Aquatic Fa	auna (B1	3)		Drair	nage Patterns (B10)
X Saturation	on (A3)		True Aqua	itic Plant	s (B14)		Dry-9	Season Water Table (C2)
Water M	arks (B1)		Hydrogen		•			fish Burrows (C8)
	nt Deposits (B2)		Oxidized F	•		J	` ' —	ration Visible on Aerial Imagery (C9)
	oosits (B3)		Presence					ted or Stressed Plants (D1)
ı —	it or Crust (B4)		Recent Iro			lled Soil	· · ·	morphic Position (D2)
I — ·	osits (B5)		Thin Muck				X FAC	-Neutral Test (D5)
	on Visible on Aeri		· —					
Sparsely	Vegetated Conc	ave Surface (E	38) Other (Exp	olain in F	Remarks)		_	
Field Obser								
Surface Wat		Yes X	No	Depth (i	· -	2		
Water Table		Yes X	No	Depth (i	· -	0		
Saturation P		Yes X	No	Depth (i	nches): _	0	Wetland Hydrolo	gy Present? Yes <u>X</u> No
(includes car						_ !	Alama Vita mailabla	
Describe Re	corded Data (stre	am gauge, mo	onitoring well, aeria	ai pnotos	, previou	s inspec	tions), if available:	
Remarks:								
i temare.								

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: OSU MALC Storm Sewer		City/Cou	nty: Columb	ous/Franklin	Sampling Date:	01/26/2024
Applicant/Owner: The Ohio State University				State: OH	Sampling Point:	3
Investigator(s): J. Brennan & A. Brown (STONE)		Section, T	ownship, Ra	ange: T1N R18W		•
Landform (hillside, terrace, etc.): Depression			Local relief (concave, convex, none):	Flat	
Slope (%): 1 Lat: 40.010514			83.039081	•	Datum: NAD83	
Soil Map Unit Name: Miamian silty clay loam, 6 to 12	nercent slone				fication: N/A	
Are climatic / hydrologic conditions on the site typical t	-		Vaa V	 -		
		•	Yes X		olain in Remarks.)	
Are Vegetation N, Soil N, or Hydrology N				Circumstances" present?		³ ——
Are Vegetation N, Soil N, or Hydrology N	naturally pro	blematic? (l	If needed, ex	xplain any answers in Re	marks.)	
SUMMARY OF FINDINGS – Attach site m	ap showi	ng samplin	g point lo	ocations, transects	, important fea	ıtures, etc.
Hydrophytic Vegetation Present? Yes X N	0	ls the	Sampled A	rea		
	° <u> </u>		a Wetland		No	
Wetland Hydrology Present? Yes X N						
Remarks:						
W-3 PFO						
VEGETATION – Use scientific names of pla	ants.					
	Absolute	Dominant	Indicator			
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test wor	ksheet:	
1. Salix nigra	40	Yes	OBL	Number of Dominant	•	- (4)
2. Populus deltoides	15	Yes	FAC	Are OBL, FACW, or F		5 (A)
3.				Total Number of Dom	nant Species	F (D)
4				Across All Strata:	—	5 (B)
5	 55	=Total Cover		Percent of Dominant S Are OBL, FACW, or F	•	00.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15)	rotal Gover		7110 002, 171000, 011	7.0. <u>10</u>	<u>0.070</u> (74B)
1. Salix nigra	25	Yes	OBL	Prevalence Index wo		
2.				Total % Cover of	: Multiply	/ by:
3.				OBL species 65	5 x 1 =	65
4.				FACW species 50	0 x 2 =	100
5				FAC species1	5 x 3 =	45
	25	=Total Cover		FACU species1	5 x 4 =	60
Herb Stratum (Plot size: 5)				UPL species0		0
1. Cinna arundinacea	30	Yes	FACW	Column Totals: 14		270 (B)
2. Symphyotrichum lateriflorum		Yes	FACW	Prevalence Index :	= B/A =1.86	<u>`</u>
3. Festuca rubra	<u>10</u> 5	No No	FACU	Hydrophytic Vegetat	ion Indicators:	
4. Allium vineale 5.			<u>FACU</u>	' ' '	Hydrophytic Veget	tation
6				X 2 - Dominance Te	, , ,	auon
7				X 3 - Prevalence Inc		
8.					Adaptations ¹ (Prov	ide supporting
9.				·	s or on a separate	
10.				Problematic Hydr	ophytic Vegetation	¹ (Explain)
	65	=Total Cover		¹ Indicators of hydric so	oil and wetland hyd	Irology must
Woody Vine Stratum (Plot size:)			be present, unless dis		
1				Hydrophytic		
2				Vegetation		
		=Total Cover		Present? Yes_	No	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)					

SOIL Sampling Point: ____3

	•	-				ator or o	confirm the absence	of indicators.)
Depth	Matrix			x Featur		1 - 2	- .	
(inches)	Color (moist)		Color (moist)	<u></u> %	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 3/2	95	10YR 4/4	5	<u> </u>	M	Loamy/Clayey	Distinct redox concentrations
1Type: C=C	ncontration D=D	— — -	Reduced Matrix, I		kod San		² l ocation	: PL=Pore Lining, M=Matrix.
Hydric Soil I		epietion, ixivi-	-Neduced Matrix, i	vio-ivias	Neu San	Giailis		rs for Problematic Hydric Soils ³ :
Histosol			Sandy Gle	ved Mat	rix (S4)			st Prairie Redox (A16)
	ipedon (A2)		Sandy Re					Manganese Masses (F12)
Black His			Stripped N					Parent Material (F21)
	n Sulfide (A4)		Dark Surfa		,			Shallow Dark Surface (F22)
	Layers (A5)		Loamy Mu		eral (F1)			er (Explain in Remarks)
2 cm Mu			Loamy Gle					(2) praint in the internation
	Below Dark Surf	ace (A11)	Depleted I	-				
l —	rk Surface (A12)	,	X Redox Da	•	,		³ Indicato	rs of hydrophytic vegetation and
Sandy M	ucky Mineral (S1))	—— Depleted I)	wetla	and hydrology must be present,
5 cm Mu	cky Peat or Peat	(S3)	Redox De	pression	s (F8)		unle	ss disturbed or problematic.
Restrictive I	_ayer (if observe	d):						
Туре:	•	,						
Depth (in	nches):						Hydric Soil Presen	t? Yes X No
Remarks:	<u></u>		<u> </u>					
HYDROLO	GY							
Wetland Hyd	drology Indicator	rs:						
_			red; check all that	apply)			Seconda	ry Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Lea	aves (B9)		Surfa	ace Soil Cracks (B6)
X High Wa	ter Table (A2)		Aquatic Fa	auna (B1	3)		Draiı	nage Patterns (B10)
X Saturation	on (A3)		True Aqua	itic Plant	s (B14)		Dry-	Season Water Table (C2)
Water M	arks (B1)		Hydrogen	Sulfide (Odor (C1)	Cray	fish Burrows (C8)
Sedimen	t Deposits (B2)		Oxidized F	Rhizosph	eres on l	_iving R	oots (C3) Satu	ration Visible on Aerial Imagery (C9)
I —	osits (B3)		Presence					ted or Stressed Plants (D1)
ı —	t or Crust (B4)		Recent Iro			lled Soil	· · ·	morphic Position (D2)
I — ·	osits (B5)		Thin Muck				X FAC	-Neutral Test (D5)
l —	on Visible on Aeria							
Sparsely	Vegetated Conca	ave Surface (E	38) Other (Exp	olain in F	Remarks)			
Field Obser								
Surface Wate		Yes X	No	Depth (i	· -	30		
Water Table		Yes X	No	Depth (i	· -	0		
Saturation P		Yes X	No	Depth (i	ncnes): _	0	Wetland Hydrolo	gy Present? Yes X No
(includes cap		om gougo ma	nitoring wall cari	l nhotoo	proviou	o inonos	tions) if available:	
Describe Rec	corded Data (strea	am gauge, mo	onitoring well, aena	ai priotos	, previou	s inspec	tions), if available:	
Remarks:								

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: OSU MALC Storm Sewer		City/Cou	nty: Columb	ous/Franklin	Sampling Date:	01/26/2024
Applicant/Owner: The Ohio State University				State: OH	Sampling Point:	4
Investigator(s): J. Brennan & A. Brown (STONE)		Section,	Гownship, Ra	ange: T1N R18W		
Landform (hillside, terrace, etc.): Flat			Local relief (concave, convex, none)	None	
Slope (%): 1 Lat: 40.010346			83.038694	·	Datum: NAD83	
Soil Map Unit Name: Miamian silty clay loam, 6 to	12 percent slopes	<u> </u>		NWI class	ification: N/A	
Are climatic / hydrologic conditions on the site typic			Yes X	No (If no, ex	—————plain in Remarks.)	
Are Vegetation N , Soil N , or Hydrology 1				Circumstances" present		n
Are Vegetation N , Soil N , or Hydrology !				xplain any answers in Re		
SUMMARY OF FINDINGS – Attach site					,	itures, etc.
Hydrophytic Vegetation Present? Yes	No X	Is the	Sampled A	rea		
Hydric Soil Present? Yes	No X	ı	n a Wetland		No_X_	
Wetland Hydrology Present? Yes	No X					
Remarks: Upland Point for W-2 and W-3		•				
VEGETATION – Use scientific names of	plants.					
Tan Olas and (District and O	Absolute	Dominant	Indicator	D T	J. D. of	
Tree Stratum (Plot size: 30) 1. Ulmus pumila	<u>% Cover</u> 40	Species? Yes	Status UPL	Dominance Test wo		
2.		163	<u> </u>	Number of Dominant Are OBL, FACW, or	•	2 (A)
3.				Total Number of Don		(, ,
4.				Across All Strata:	man opeoics	6 (B)
5.				Percent of Dominant	Species That	
	40 =	Total Cover		Are OBL, FACW, or		3.3% (A/B)
Sapling/Shrub Stratum (Plot size: 15)					
1. Ulmus pumila	5	Yes	UPL	Prevalence Index w		
2. Morus alba		Yes	FAC_	Total % Cover of		
3. Lonicera maackii	5	Yes	UPL		0 x1=	0
4				· —		40
5		Total Cover				165 160
Herb Stratum (Plot size: 5)		Total Cover		· -		250
1. Poa pratensis	40	Yes	FAC			615 (B)
2. Festuca rubra	35	Yes	FACU	Prevalence Index	`	`` <i>`</i>
3. Conium maculatum	20	No	FACW			
4. Carex blanda	5	No	FAC	Hydrophytic Vegeta	tion Indicators:	
5. Oenothera biennis	5	No	FACU	1 - Rapid Test fo	r Hydrophytic Veget	ation
6. Cynanchum laeve	5	No	FAC	2 - Dominance T	est is >50%	
7				3 - Prevalence Ir		
8				·	I Adaptations ¹ (Prov	
9					ks or on a separate	
10				Problematic Hyd	rophytic Vegetation	(Explain)
Woody Vine Stratum (Plot size:	110=	Total Cover		¹ Indicators of hydric s be present, unless di	•	
1					,	
2.				Hydrophytic Vegetation		
	=	Total Cover		Present? Yes	No X	_
Remarks: (Include photo numbers here or on a s	eparate sheet.)			1		
	. ,					

SOIL Sampling Point: 4

Depth	0 1	~ .			_ 1	1 2	_			
inches)	Color (moist)		Color (moist)		Type ¹	Loc ²	Texture		Remarks	
0-16	10YR 4/4	100					Loamy/Clay	ey		
	acontration D-Dan		-Poduced Metrix		Lod Son		21.0	ootion: DI =Do	re Lining, M=Matı	-iv
lydric Soil In	ncentration, D=Dep	etion, Kivi	-Reduced Matrix,	IVIO-IVIAS	keu San	J Glailis.			oblematic Hydric	
Histosol (A			Sandy G	leyed Mat	rix (S4)		ina	Coast Prairie	-	JOHS .
	pedon (A2)			edox (S5)				-	se Masses (F12)	
— Black Histi				Matrix (S6				Red Parent M		
	Sulfide (A4)			face (S7)	,			-	Dark Surface (F2	2)
	_ayers (A5)			lucky Mine	eral (F1)			Other (Explain	•	-,
2 cm Muck	, , ,			leyed Mat				(Explain	· ····································	
	Below Dark Surface	(A11)		Matrix (F						
	k Surface (A12)	` '	 ·	ark Surfac	*		³ Inc	dicators of hydr	ophytic vegetatio	n and
— Sandy Mu	cky Mineral (S1)		—— Depleted	Dark Sur	face (F7)		-	logy must be pres	
5 cm Mucl	5 cm Mucky Peat or Peat (S3)		Redox D	epression	s (F8)			unless disturb	ed or problemation	·.
— Restrictive La	ayer (if observed):									
	,									
Type:										
Depth (inc	hes):						Hydric Soil Pr	resent?	Yes	. No
Depth (inc	hes):						Hydric Soil Pr	resent?	Yes	. No
Depth (inc	<u></u>						Hydric Soil Pr	esent?	Yes	No
Depth (inc	<u></u>						Hydric Soil Pr	resent?	Yes	No
Depth (inc Remarks: YDROLOG Vetland Hydr	GY	ne is requ	ired; check all tha	t apply)			·		Yes	
Depth (inc Remarks: YDROLOG Vetland Hydr Primary Indica Surface W	ology Indicators: ators (minimum of o	ne is requ	Water-St	ained Lea	` '		·		ors (minimum of	
Depth (inc Remarks: YDROLOG Vetland Hydr Primary Indica Surface W High Wate	rology Indicators: ators (minimum of o /ater (A1) er Table (A2)	ne is requ	Water-St Aquatic F	ained Lea auna (B1	3) ` ´		·	condary Indicat Surface Soil C Drainage Patt	ors (minimum of Cracks (B6) erns (B10)	
Depth (inc Remarks: YDROLOG Vetland Hydr Primary Indica Surface W High Wate Saturation	rology Indicators: ators (minimum of or /ater (A1) er Table (A2) (A3)	ne is requ	Water-St Aquatic F True Aqu	ained Lea auna (B1 atic Plant	3) s (B14)		·	condary Indicat Surface Soil C Drainage Patt Dry-Season W	ors (minimum of Cracks (B6) erns (B10) // ater Table (C2)	
Depth (inc Remarks: YDROLOG Vetland Hydr Primary Indica Surface W High Wate Saturation Water Mar	rology Indicators: stors (minimum of or /ater (A1) er Table (A2) (A3) rks (B1)	ne is requ	Water-St Aquatic F True Aqu Hydroge	ained Lea auna (B1 atic Plant Sulfide (3) s (B14) Odor (C1)	Sec	condary Indicat Surface Soil C Drainage Patt Dry-Season W Crayfish Burro	ors (minimum of Cracks (B6) erns (B10) /ater Table (C2)	wo require
Primary Indica Surface W High Wate Saturation Water Mar Sediment	rology Indicators: ators (minimum of or /ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2)	ne is requ	Water-St Aquatic F True Aqu Hydrogei Oxidized	ained Lea Fauna (B1 Patic Plant In Sulfide (Rhizosph	3) s (B14) Odor (C1 eres on) Living Ro	Sec	condary Indicat Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis	ors (minimum of Cracks (B6) erns (B10) Vater Table (C2) ows (C8) ible on Aerial Ima	wo require
Pigh Water Mar Sediment Drift Depos	rology Indicators: ators (minimum of or /ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3)	ne is requ	Water-St Aquatic F True Aqu Hydroget Oxidized Presence	ained Lea Fauna (B1 atic Plant Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1 eres on l ced Iron) Living Ro (C4)	Sec	condary Indicat Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str	ors (minimum of Cracks (B6) erns (B10) /ater Table (C2) ows (C8) ible on Aerial Ima essed Plants (D1	wo require
Primary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depos	rology Indicators: stors (minimum of or /ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4)	ne is requ	Water-St Aquatic F True Aqu Hydroget Oxidized Presence	ained Lea Fauna (B1 atic Plant n Sulfide (Rhizosph e of Reduc on Reduc	3) s (B14) Odor (C1 eres on lead Iron etion in Ti) Living Ro (C4)	Sec	condary Indicat Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str Geomorphic F	ors (minimum of Cracks (B6) erns (B10) /ater Table (C2) ows (C8) ible on Aerial Imagessed Plants (D1) Position (D2)	wo require
Primary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depos	rology Indicators: stors (minimum of or /ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		Water-St Aquatic F True Aqu Hydroget Oxidized Presencet Recent It	ained Lea Fauna (B1 Patic Plant Sulfide (Rhizosph of Reducton Reductor k Surface	3) s (B14) Odor (C1 eres on lead Iron etion in Ti) Living Ro (C4)	Sec	condary Indicat Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str	ors (minimum of Cracks (B6) erns (B10) /ater Table (C2) ows (C8) ible on Aerial Imagessed Plants (D1) Position (D2)	wo require
Primary Indica Saturation Water Mar Sediment Drift Depos Iron Depos Inundation	rology Indicators: ators (minimum of or ater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) a Visible on Aerial In	magery (B	Water-St Aquatic F True Aqu Hydrogei Oxidized Presence Recent Ii Thin Muc 7) Gauge o	ained Lea Fauna (B1 atic Plant Sulfide (Rhizosph of Reduction Reduction k Surface	3) s (B14) Odor (C1 eres on lead from the call from the ca) Living Ro (C4) illed Soils	Sec	condary Indicat Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str Geomorphic F	ors (minimum of Cracks (B6) erns (B10) /ater Table (C2) ows (C8) ible on Aerial Imagessed Plants (D1) Position (D2)	wo require
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ENG FORM 6116-7, JUL 2018Midwest – Version 2.0

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: OSU MALC Storm Sewer		City/Co	ounty: Columb	ous/Franklin	Sampling Date	: 01/26/2024
Applicant/Owner: The Ohio State University				State: OH	- Sampling Point	: 5
Investigator(s): J. Brennan & A. Brown (STONE)		Section	n, Township, Ra	nge: T1N R18W	-	
Landform (hillside, terrace, etc.): Toe Slope			Local relief (d	concave, convex, none)	: Concave	
Slope (%): 1 Lat: 40.009910		Long	- : -83.037860	, , ,	Datum: NAD83	
Soil Map Unit Name: Miamian silty clay loam, 6 to 12 p	ercent slone			NWI class	ification: R4SBC	
	-					
Are climatic / hydrologic conditions on the site typical for			Yes X	No (If no, ex		
Are Vegetation N, Soil N, or Hydrology N				Circumstances" present		No
Are Vegetation N, Soil N, or Hydrology N,	naturally prob	olematic?	(If needed, ex	plain any answers in Re	emarks.)	
SUMMARY OF FINDINGS – Attach site ma	ap showir	ng samp	ling point lo	ocations, transects	s, important fe	eatures, etc.
Hydrophytic Vegetation Present? Yes X No)	ls t	he Sampled A	rea		
Hydric Soil Present? Yes X No		wit	hin a Wetland	? Yes X	No	
Wetland Hydrology Present? Yes X No						
Remarks:		-				
W-4 PEM						
VEGETATION – Use scientific names of pla	ints.					
<u>Tree Stratum</u> (Plot size:)	Absolute % Cover	Dominan Species?		Dominance Test wo	vrkshoot:	
1. (Flot size)	_/₀ Cover	Species:	Status			
2.				Number of Dominant Are OBL, FACW, or	•	2 (A)
3.				Total Number of Don		``,
4.				Across All Strata:		2 (B)
5.				Percent of Dominant	Species That	
		=Total Cove	er	Are OBL, FACW, or	FAC:	100.0% (A/B)
Sapling/Shrub Stratum (Plot size:)					
1				Prevalence Index w		
2.				Total % Cover of	·	
3 4.				· —	35 x1= 35 x2=	85 70
5.					2 x3=	6
		=Total Cove	er	· ·	0 x 4 =	0
Herb Stratum (Plot size: 5)					0 x 5 =	0
1. Calamagrostis canadensis	50	Yes	OBL	Column Totals: 1	22 (A)	161 (B)
2. Solidago gigantea	35	Yes	FACW	Prevalence Index	= B/A =1.	32
3. Juncus effusus	20	No	OBL			
4. Scirpus atrovirens	10	No	OBL	Hydrophytic Vegeta		
5. Epilobium coloratum	5	No	OBL		r Hydrophytic Veg	etation
6. Vernonia gigantea	2	No	_ FAC_	X 2 - Dominance T		
7. 8.				X 3 - Prevalence Ir	idex is ≤3.0 Il Adaptations¹ (Pro	wide supporting
		-			ks or on a separat	
10.					rophytic Vegetatio	
	122	=Total Cov	– ——— er	¹ Indicators of hydric s		
Woody Vine Stratum (Plot size:				be present, unless di		
1				Hydrophytic		
2.				Vegetation		
	:	=Total Cove	er	Present? Yes	X No	
Remarks: (Include photo numbers here or on a separ	rate sheet.)	_				

SOIL Sampling Point: 5

Depth Matrix	Redo	x Features			
inches) Color (moist) %	Color (moist)	% Type	1 Loc ²	Texture	Remarks
0-16 10YR 4/1 95	10YR 4/4	5 C		Loamy/Clayey	Distinct redox concentrations
		· 			
		· ·			-
ype: C=Concentration, D=Depletion, R	M=Reduced Matrix, I	MS=Masked Sa	nd Grains		: PL=Pore Lining, M=Matrix.
ydric Soil Indicators:	Canaly Cla	ound Matrix (C.1)			s for Problematic Hydric Soils ³ :
Histosol (A1)		eyed Matrix (S4)			t Prairie Redox (A16)
Histic Epipedon (A2) Black Histic (A3)	Sandy Re- Stripped N				Manganese Masses (F12) Parent Material (F21)
Hydrogen Sulfide (A4)	Dark Surfa	, ,			Shallow Dark Surface (F22)
Stratified Layers (A5)		ucky Mineral (F1	1		r (Explain in Remarks)
2 cm Muck (A10)		eyed Matrix (F2			(Explain in Remarks)
Depleted Below Dark Surface (A11)	X Depleted I		,		
Thick Dark Surface (A12)		rk Surface (F6)		³ Indicator	s of hydrophytic vegetation and
Sandy Mucky Mineral (S1)		Dark Surface (F	7)		and hydrology must be present,
5 cm Mucky Peat or Peat (S3)		Redox Depressions (F8)			s disturbed or problematic.
estrictive Layer (if observed): Type: Depth (inches):				Hydric Soil Present	?? Yes <u>X</u> No_
estrictive Layer (if observed): Type: Depth (inches): emarks:				Hydric Soil Present	? Yes <u>X</u> No_
estrictive Layer (if observed): Type: Depth (inches): emarks:				Hydric Soil Present	?? Yes <u>X</u> No_
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY Vetland Hydrology Indicators:					
estrictive Layer (if observed): Type: Depth (inches): emarks: /DROLOGY // Cetland Hydrology Indicators: rimary Indicators (minimum of one is recommend)			0)	Secondar	ry Indicators (minimum of two requ
restrictive Layer (if observed): Type: Depth (inches): emarks: CDROLOGY Tetland Hydrology Indicators: emary Indicators (minimum of one is red C Surface Water (A1)	Water-Sta	ined Leaves (B	9)	Secondal Surfa	ry Indicators (minimum of two requice Soil Cracks (B6)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2)	Water-Sta	ined Leaves (B auna (B13)		Secondal Surfa Drair	ry Indicators (minimum of two requ nce Soil Cracks (B6) nage Patterns (B10)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3)	Water-Sta Aquatic Fa True Aqua	iined Leaves (B auna (B13) atic Plants (B14)	Secondal Surfa Drair	ry Indicators (minimum of two requice Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Water-Sta Aquatic Fa True Aqua Hydrogen	ined Leaves (B auna (B13) atic Plants (B14 Sulfide Odor (C) ;1)	Secondal Surfa Drair Dry-S	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8)
estrictive Layer (if observed): Type: Depth (inches): emarks: **TOROLOGY** **Total Hydrology Indicators: rimary Indicators (minimum of one is red **Surface Water (A1)* **High Water Table (A2)* **Saturation (A3)*	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	nined Leaves (B auna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres o) :1) n Living Re	Secondal Surfa Drain Dry-S Crayloots (C3)X Satul	ry Indicators (minimum of two requ nce Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8)
rype: Depth (inches): emarks: POROLOGY Tetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F	ined Leaves (B auna (B13) atic Plants (B14 Sulfide Odor (C) :1) n Living Ro n (C4)	Secondar Surfa Drain Dry-5 Crayl Dots (C3) X Satur	ry Indicators (minimum of two requ nce Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro	nined Leaves (B auna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres of of Reduced Iro) :1) n Living Ro n (C4)	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) rage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (Cseed or Stressed Plants (D1)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck	nined Leaves (B auna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres of of Reduced Iron on Reduction in) :1) n Living Ro n (C4)	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (Csted or Stressed Plants (D1) morphic Position (D2)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one is red	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or	ained Leaves (Bauna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres of of Reduced Iron on Reduction in a Surface (C7)) n Living Ro n (C4) Tilled Soil	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (Csted or Stressed Plants (D1) morphic Position (D2)
estrictive Layer (if observed): Type: Depth (inches): emarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (Sparsely Vegetated Concave Surface	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or	ained Leaves (Bauna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres of of Reduced Iron on Reduction in a Surface (C7) Well Data (D9)) n Living Ro n (C4) Tilled Soil	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (Csted or Stressed Plants (D1) morphic Position (D2)
estrictive Layer (if observed): Type: Depth (inches): emarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (Sparsely Vegetated Concave Surface (Inches)	Water-Sta Aquatic Fa Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or	ained Leaves (Bauna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres of of Reduced Iron on Reduction in a Surface (C7) Well Data (D9)	on Living Ron (C4) Tilled Soil	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (Csted or Stressed Plants (D1) morphic Position (D2)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one is red	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or (B8) Other (Exp	ained Leaves (Bauna (B13) atic Plants (B14 Sulfide Odor (C Rhizospheres of of Reduced Iron on Reduction in a Surface (C7) Well Data (D9) olain in Remark	in Living Rong (C4) Tilled Soil	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (Csted or Stressed Plants (D1) morphic Position (D2)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY /etland Hydrology Indicators: rimary Indicators (minimum of one is red	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or (B8) No No	ained Leaves (Bauna (B13) atic Plants (B14 Sulfide Odor (CRhizospheres of Reduced Iron Reduction in a Surface (C7) Well Data (D9) blain in Remark Depth (inches)	t1) c1) c1) c1) c1) c1) c1) c1) c2) c3) c3) c4) c3)	Secondar Surfar Drain Dry-S Crayl Doots (C3) X Satural Stuntar	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) led or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
Pestrictive Layer (if observed): Type: Depth (inches): Pemarks: Pemarks: Pemarks: Petland Hydrology Indicators: Perimary Indicators (minimum of one is red X Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (Sparsely Vegetated Concave Surface (Inches) Inches Vater Table Present? Pesson X Vater Table Present? Vesson X Vater Table Present? Vesson X Vater Table Present? Vesson X Vater Table Concave (Vesson X) Vater Table Present? Vesson X Vater Table Concave (Vesson X) Vater Table Present? Vesson X Vater Table Concave (Vesson X) Vater Table Concav	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or (B8) Other (Exp	ained Leaves (Bauna (B13) atic Plants (B14) Sulfide Odor (CRhizospheres of Reduced Ironor Reduction in Surface (C7) Well Data (D9) Dain in Remark Depth (inches) Depth (inches)	t1) c1) c1) c1) c1) c1) c1) c1) c2) c3) c4 c3) c4 c3) c4	Secondar Surfa Drair Dry-S Crayi Soots (C3) X Satur Stunt S (C6) X Geor X FAC-	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) led or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)
estrictive Layer (if observed): Type: Depth (inches): emarks: YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one is red Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (Sparsely Vegetated Concave Surface (Ield Observations: urface Water Present? Ves X Vater Table Present? Yes X Saturation Present? Yes X	Water-Sta Aquatic Fa True Aqua Hydrogen Oxidized Fa Presence Recent Iro Thin Muck B7) Gauge or (B8) Other (Exp	ained Leaves (Bauna (B13) atic Plants (B14) Sulfide Odor (CRhizospheres of Reduced Ironor Reduction in Surface (C7) Well Data (D9) Dain in Remark Depth (inches) Depth (inches)	t1) c1) c1) c1) c1) c1) c1) c1) c2) c3) c4 c3) c4 c3) c4	Secondar Surfa Drair Dry-S Crayi Soots (C3) X Satur Stunt S (C6) X Geor X FAC-	ry Indicators (minimum of two requiree Soil Cracks (B6) lage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) led or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)

ENG FORM 6116-7, JUL 2018 Midwest – Version 2.0

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: OSU MALC Storm Sewer	City/Cou	nty: Columb	ous/Franklin	Sampling Date:	01/26/2024	
Applicant/Owner: The Ohio State University				State: OH	Sampling Point	6
Investigator(s): J. Brennan & A. Brown (STONE)		Section, -	Γownship, Ra	ange: T1N R18W		
Landform (hillside, terrace, etc.): Hillside			Local relief (concave, convex, non	e): Concave	
Slope (%):3 Lat: _40.009843		Long:	83.037737		Datum: NAD83	
Soil Map Unit Name: Miamian silty clay loam, 6 to	12 percent slopes	s, eroded		NWI cla	ssification: N/A	
Are climatic / hydrologic conditions on the site typic	al for this time of	year?	Yes X	No (If no,	explain in Remarks.)	
Are Vegetation N , Soil N , or Hydrology N	l significantly d	isturbed? /	Are "Normal (Circumstances" prese	ent? Yes X N	No
Are Vegetation N , Soil N , or Hydrology N			If needed, ex	xplain any answers in	Remarks.)	
SUMMARY OF FINDINGS – Attach site	— map showin	g samplir	ng point lo	ocations, transec	cts, important fe	atures, etc.
Hydrophytic Vegetation Present? Yes	No X	Is the	Sampled A	rea		
Hydric Soil Present? Yes	No X		n a Wetland		No_X_	
Wetland Hydrology Present? Yes	No X					
Remarks: Upland Point for W-1 and W-4		•				
Opiand Point for W-1 and W-4						
VEGETATION – Use scientific names of	•					
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test	worksheet:	
1				Number of Domina	ant Species That	
2				Are OBL, FACW, o	or FAC:	1 (A)
3.				Total Number of D	ominant Species	0 (D)
5.				Across All Strata:		2 (B)
J	— —— ₌	Total Cover		Percent of Domina Are OBL, FACW, of	•	50.0% (A/B)
Sapling/Shrub Stratum (Plot size:				,		` ′
1.				Prevalence Index	worksheet:	
2				Total % Cove	r of: Multip	ly by:
3				OBL species	0 x 1 =	0
4				FACW species	70 x 2 =	140
5				FAC species	0 x 3 =	0
Llowb Chrotium (Diot sine) 5	=	:Total Cover		FACU species UPL species	20 x 4 =	80
Herb Stratum (Plot size: 5) 1. Conium maculatum	70	Yes	FACW	Column Totals:	5 x 5 = 95 (A)	25 245 (B)
Setaria faberi		Yes	FACU	Prevalence Inde		``
3. Lamium purpureum		No	UPL	1 Tovalonoo maa	2.0	
4.				Hydrophytic Vege	etation Indicators:	
5.				1	for Hydrophytic Vege	etation
6.				2 - Dominance	e Test is >50%	
7.				3 - Prevalence	Index is ≤3.0 ¹	
8.				4 - Morphologi	cal Adaptations ¹ (Pro	vide supporting
9.				data in Rem	narks or on a separat	e sheet)
10				Problematic H	ydrophytic Vegetatio	n ¹ (Explain)
Woody Vine Stratum (Plot size:		:Total Cover			c soil and wetland hy disturbed or problem	
1	— ′				Election of problem	
2.				Hydrophytic Vegetation		
	=	Total Cover		_	es No_X	<u></u>
Remarks: (Include photo numbers here or on a se	eparate sheet.)			l .		

SOIL Sampling Point: 6

Depth Matrix	_	k Feature				
(inches) Color (moist) %	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-16 10YR 3/3 100					Loamy/Clayey	
					2	
Type: C=Concentration, D=Depletion, F	RM=Reduced Matrix, N	1S=Masi	ked Sand	Grains.		n: PL=Pore Lining, M=Matrix.
lydric Soil Indicators:	Candy Clay	1 1 1 - 4.	÷ (C.1)			ors for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Gley Sandy Red		1X (S4)			st Prairie Redox (A16) -Manganese Masses (F12)
Histic Epipedon (A2) Black Histic (A3)	Stripped M		:\			Parent Material (F21)
Hydrogen Sulfide (A4)	Dark Surfa	`	")			/ Shallow Dark Surface (F22)
Stratified Layers (A5)	Loamy Mu	` ′	ral (E1)			er (Explain in Remarks)
2 cm Muck (A10)	Loamy Gle	-				
Depleted Below Dark Surface (A11)	Depleted N					
Thick Dark Surface (A12)	Redox Dar	`	,		³ Indicate	ors of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted D		` ')		and hydrology must be present,
5 cm Mucky Peat or Peat (S3)	 ·	Redox Depressions (F8)				ess disturbed or problematic.
— Restrictive Layer (if observed):						·
Type:						
Type: Depth (inches):					Hydric Soil Preser	nt? Yes No
					Hydric Soil Preser	nt? Yes No
Depth (inches):					Hydric Soil Preser	nt? Yes <u> </u>
Depth (inches): Remarks:					Hydric Soil Preser	nt? Yes No
Depth (inches): Remarks: YDROLOGY					Hydric Soil Preser	nt? Yes No
Depth (inches): Remarks: YDROLOGY Vetland Hydrology Indicators:	equired; check all that a	apply)				ary Indicators (minimum of two require
Depth (inches): Remarks: YDROLOGY Vetland Hydrology Indicators:	equired; check all that a		ves (B9)		Seconda	
Depth (inches): Remarks: YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is re	-	ned Lea	, ,		Seconda Surf	ary Indicators (minimum of two require
Depth (inches): Pemarks: YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is re Surface Water (A1)	Water-Stai	ned Lea una (B1	3)		Seconda Surl Drai	ary Indicators (minimum of two require face Soil Cracks (B6)
Primary Indicators (minimum of one is re Surface Water (A1) High Water Table (A2)	Water-Stai	ned Lea una (B1: tic Plant:	3) s (B14)		Surl Surl Drai Dry-	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10)
Depth (inches): Primary Indicators (minimum of one is result of Surface Water (A1) High Water Table (A2) Saturation (A3)	Water-Stai Aquatic Fa True Aqua	ned Lea una (B1: tic Plants Sulfide C	3) s (B14) Odor (C1)	Seconda Surl Drai Dry- Cray	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8)
Depth (inches): Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Water-Stai Aquatic Fa True Aquat Hydrogen S	ned Lea una (B1 tic Plants Sulfide C hizosph	3) s (B14) Odor (C1) eres on l) _iving Ro	Seconda Surf Drai Cray ots (C3) Satu	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8)
Depth (inches): Remarks: Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	Water-Stai Aquatic Fa True Aquat Hydrogen 9 Oxidized R	ned Lea una (B1 tic Plants Sulfide C hizosphof Reduc	3) s (B14) Odor (C1) eres on l ced Iron () _iving Rc (C4)	Seconda	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	Water-Stai Aquatic Fa True Aquat Hydrogen S Oxidized R Presence of Recent Iron Thin Muck	ned Lea una (B1: Sulfide C hizosphof Reduc n Reduc Surface	3) s (B14) Odor (C1) eres on led Iron (tion in Ti) _iving Rc (C4)	Seconda	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) yfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1)
Depth (inches): Remarks: YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is researched) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery	Water-Stai Aquatic Fa True Aquat Hydrogen S Oxidized R Presence C Recent Iron Thin Muck (B7) Gauge or V	ned Lea una (B1: Sulfide C hizosphof Reduc n Reduc Surface Vell Data	3) s (B14) Odor (C1 eres on I ed Iron (tion in Ti (C7) a (D9)) _iving Rc (C4) Iled Soils	Seconda	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	Water-Stai Aquatic Fa True Aquat Hydrogen S Oxidized R Presence C Recent Iron Thin Muck (B7) Gauge or V	ned Lea una (B1: Sulfide C hizosphof Reduc n Reduc Surface Vell Data	3) s (B14) Odor (C1 eres on I ed Iron (tion in Ti (C7) a (D9)) _iving Rc (C4) Iled Soils	Seconda	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2)
Popth (inches): Remarks: Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations:	Water-Stai Aquatic Fa True Aquat Hydrogen S Oxidized R Presence of Recent Iron Thin Muck (B7) Gauge or V se (B8) Other (Exp	ned Lea una (B1 Sulfide C hizosph of Reduc n Reduc Surface Well Data lain in R	3) s (B14) Odor (C1 eres on led Iron (tion in Ti (C7) a (D9) emarks)) _iving Rc (C4) Iled Soils	Seconda	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2)
Depth (inches): Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes	Water-Stai Aquatic Fa True Aquat Hydrogen S Oxidized R Presence of Recent Iron Thin Muck (B7) Gauge or V See (B8) Other (Exp	ned Lea una (B1 Sulfide C hizosphof Reduc n Reduc Surface Vell Data lain in R	3) s (B14) Odor (C1 eres on I eed Iron (tion in Ti (C7) a (D9) emarks)) _iving Rc (C4) Iled Soils	Seconda	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) rfish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2)
Depth (inches): Remarks: Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Ves Water Table Present? Yes	Water-Stai	ned Lea una (B1: Sulfide C hizosphof Reduc on Reduc Surface Vell Data lain in R	3) s (B14) Odor (C1 eres on I ed Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _) _iving Rc (C4) Iled Soils	Seconda Surf Drai Dry- Cray ots (C3) Satu Stur Stur Geo	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) /fish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2) c-Neutral Test (D5)
Print Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Water Present? Surface Water Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes	Water-Stai	ned Lea una (B1 Sulfide C hizosphof Reduc n Reduc Surface Vell Data lain in R	3) s (B14) Odor (C1 eres on I ed Iron (tion in Ti (C7) a (D9) emarks) nches): _ nches): _) _iving Rc (C4) Iled Soils	Seconda	ary Indicators (minimum of two required face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) In Juriation Visible on Aerial Imagery (C9) Inted or Stressed Plants (D1) Imorphic Position (D2) C-Neutral Test (D5)
Depth (inches): Remarks: Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Water Table Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes Sincludes capillary fringe)	Water-Stai	ned Lea una (B1 tic Plants Sulfide C hizosph of Reduc n Reduc Surface Vell Dats lain in R Depth (in Depth (in	3) s (B14) Ddor (C1 eres on I ed Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _) Living Ro (C4) Illed Soils	Seconda Surf Drai Dry Cra Satu Stur (C6) FAC	ary Indicators (minimum of two required ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) In Juriation Visible on Aerial Imagery (C9) Inted or Stressed Plants (D1) Imorphic Position (D2) Inter Alexandre (D5)
Depth (inches): Remarks: Primary Indicators (minimum of one is result on Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Ves Saturation Present? Yes Saturation Present? Yes	Water-Stai	ned Lea una (B1 tic Plants Sulfide C hizosph of Reduc n Reduc Surface Vell Dats lain in R Depth (in Depth (in	3) s (B14) Ddor (C1 eres on I ed Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _) Living Ro (C4) Illed Soils	Seconda Surf Drai Dry Cra Satu Stur (C6) FAC	ary Indicators (minimum of two required face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) In Juriation Visible on Aerial Imagery (C9) Inted or Stressed Plants (D1) Imorphic Position (D2) C-Neutral Test (D5)
Primary Indicators (minimum of one is result of surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Water Table Present? Ves Saturation Present? Secribe Recorded Data (stream gauge,	Water-Stai	ned Lea una (B1 tic Plants Sulfide C hizosph of Reduc n Reduc Surface Vell Dats lain in R Depth (in Depth (in	3) s (B14) Ddor (C1 eres on I ed Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _) Living Ro (C4) Illed Soils	Seconda Surf Drai Dry Cra Satu Stur (C6) FAC	ary Indicators (minimum of two require face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) /fish Burrows (C8) uration Visible on Aerial Imagery (C9) nted or Stressed Plants (D1) morphic Position (D2) c-Neutral Test (D5)
Prince Water (B4) Iron Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Water Present? Surface Water Present? Surface Water Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes Sincludes capillary fringe)	Water-Stai	ned Lea una (B1 tic Plants Sulfide C hizosph of Reduc n Reduc Surface Vell Dats lain in R Depth (in Depth (in	3) s (B14) Ddor (C1 eres on I ed Iron (tion in Ti (C7) a (D9) emarks) nches): _nches): _) Living Ro (C4) Illed Soils	Seconda Surf Drai Dry Cra Satu Stur (C6) FAC	ary Indicators (minimum of two required face Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) In Juriation Visible on Aerial Imagery (C9) Inted or Stressed Plants (D1) Imorphic Position (D2) C-Neutral Test (D5)

ENG FORM 6116-7, JUL 2018Midwest – Version 2.0

See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

Project/Site: OSU MALC Storm Sewer		City/Cou	nty: Columb	ous/Franklin	Sampling Date:	01/26/2024
Applicant/Owner: The Ohio State University				State: OH	Sampling Point:	7
Investigator(s): J. Brennan & A. Brown (STONE)		Section,	Гownshiр, Ra	ange: T1N R18W		•
Landform (hillside, terrace, etc.): Flat			Local relief (d	concave, convex, none):	None	
Slope (%): 2 Lat: 40.010690		Long: -	83.039886		Datum: NAD83	
Soil Map Unit Name: Crosby silt loam, Southern Ohio	Till Plain, 2 to				fication: N/A	
Are climatic / hydrologic conditions on the site typical t		-	Yes X	No (If no, exp		
				Circumstances" present?		
Are Vegetation N , Soil N , or Hydrology N				•		
Are Vegetation N , Soil N , or Hydrology N			•	xplain any answers in Re	•	oturos ete
SUMMARY OF FINDINGS – Attach site m	ap snown	ig sampiii	ig point ic	cations, transects	, important lea	atures, etc.
	o_X_	Is the	Sampled A	rea		
	0 <u>X</u>	withi	n a Wetland	? Yes	NoX	
Wetland Hydrology Present? Yes N	o_X_					
Remarks:						
Upland Point						
VECETATION . Has a significan array of pla						
VEGETATION – Use scientific names of pla	Absolute	Dominant	Indicator	ı		
<u>Tree Stratum</u> (Plot size:)	% Cover	Species?	Status	Dominance Test wo	rksheet:	
1				Number of Dominant	Species That	
2				Are OBL, FACW, or F	AC:	2 (A)
3				Total Number of Dom	inant Species	
4				Across All Strata:		4 (B)
5				Percent of Dominant	•	-0.00/ (4./5)
Conline/Chruh Ctuatura (Diet aire) 15	, 	=Total Cover		Are OBL, FACW, or F	AC:5	60.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15 . Ulmus pumila) 5	Yes	UPL	Prevalence Index wo		
Populus deltoides	5	Yes	FAC	Total % Cover of		v bv:
3.				OBL species (0
4.				FACW species 2	0 x 2 =	40
5.				FAC species 5	x 3 =	15
	10	=Total Cover		FACU species 9	0 x 4 =	360
Herb Stratum (Plot size: 5)				UPL species5		25
1. Festuca rubra	40	Yes	FACU	Column Totals: 12	` ′	440 (B)
2. Conium maculatum		Yes	FACU	Prevalence Index	= B/A =3.6	<u>//</u>
Sorghum halepense Setaria faberi	<u>15</u> 15	No No	FACU FACU	Hydrophytic Vegetat	ion Indicators:	
5. Symphyotrichum ericoides	10	No	FACU	1	· Hydrophytic Vege	etation
6. Cirsium arvense	10	No	FACU	2 - Dominance Te		nation .
7.				3 - Prevalence In		
8.				4 - Morphological	Adaptations ¹ (Pro	vide supporting
9.				data in Remark	ks or on a separate	e sheet)
10				Problematic Hydr	ophytic Vegetation	า ¹ (Explain)
	110	=Total Cover		¹ Indicators of hydric s	•	
Woody Vine Stratum (Plot size:)			be present, unless dis	turbed or problem	atic.
1				Hydrophytic		
2		Total Cover		Vegetation	No. V	
		- rotal Cover		Present? Yes	No X	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)					

SOIL Sampling Point: 7

Depth	Matrix	 -			- 1	. 2			_	
inches)	Color (moist)		Color (moist)		Type ¹	Loc ²	Texture		Remarks	
0-16	10YR 3/4	100					Loamy/Cla	<u>yey</u>		
							-			
	 ncentration, D=Dep		=Reduced Matrix	MS=Mas	—— kad San	d Grains	21	ocation: PI =P	Pore Lining, M=Mat	riv
ydric Soil Ir		Cuon, run	-reduced Matrix,	WO-Was	ica Gari	u Oranis.			roblematic Hydric	
Histosol (Sandy Gl	eved Mat	rix (S4)				e Redox (A16)	
_	pedon (A2)		Sandy Re				_	_	nese Masses (F12)	
Black His			Stripped I	` ′			_	_	Material (F21)	
_	Sulfide (A4)		Dark Surf	`	-,			_	w Dark Surface (F2	(2)
	Layers (A5)		Loamy M	` ′	eral (F1)		_	_ ′	ain in Remarks)	,
2 cm Muc	, , ,		Loamy G				_		,	
	Below Dark Surface	e (A11)	Depleted							
— · Thick Dar	k Surface (A12)	` ,	Redox Da	,	*		³ lr	dicators of hyd	drophytic vegetatio	n and
— Sandy Μι	ucky Mineral (S1)		—— Depleted	Dark Sur	face (F7)		wetland hydi	rology must be pre	sent,
5 cm Muc	cky Peat or Peat (S3	5)	Redox De	Redox Depressions (F8)				unless distu	rbed or problemation	o .
estrictive L	ayer (if observed):									
Туре:										
Type: Depth (ind	ches):		_				Hydric Soil F	Present?	Yes	No
Type: Depth (ind Remarks:	· -		_				Hydric Soil F	Present?	Yes	_ No
Type:	GY						Hydric Soil F	resent?	Yes	No_
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Type:	GY Irology Indicators: ators (minimum of c	ne is requ			was (PA)			econdary Indic	ators (minimum of	
Type:	GY rology Indicators: ators (minimum of c	ne is requ	Water-Sta	ained Lea	` ')		econdary Indica Surface Soil	ators (minimum of Cracks (B6)	
Type:	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2)	ne is requ	Water-Sta Aquatic F	ained Lea auna (B1	3) ` ´)		econdary Indica Surface Soil Drainage Pa	ators (minimum of Cracks (B6) atterns (B10)	
Type:	GY rology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3)	ne is requ	Water-Sta Aquatic F True Aqua	ained Lea auna (B1 atic Plant	3) s (B14)			econdary Indica Surface Soil Drainage Pa Dry-Season	ators (minimum of Cracks (B6) atterns (B10) Water Table (C2)	
Type: Depth (independent of the proof	GY Irology Indicators: ators (minimum of or Vater (A1) er Table (A2) n (A3) arks (B1)	ne is requ	Water-Sta Aquatic F True Aqua Hydrogen	ained Lea auna (B1 atic Plant Sulfide (3) s (B14) Odor (C1)		econdary Indica Surface Soil Drainage Pa Dry-Season Crayfish Bur	ators (minimum of Cracks (B6) atterns (B10) Water Table (C2) rrows (C8)	two requir
Type: Depth (income semarks: YDROLOG Vetland Hyd Primary Indication Surface V High Wate Saturation Water Mate Sediment	GY Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2)	ne is requ	Water-Sta Aquatic F True Aqu Hydrogen Oxidized	ained Lea auna (B1 atic Plant Sulfide (Rhizosph	3) s (B14) Odor (C1 eres on) Living Ro		econdary Indica Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V	ators (minimum of Cracks (B6) atterns (B10) Water Table (C2) rrows (C8) (isible on Aerial Ima	two requir
Type:	GY Irology Indicators: ators (minimum of o Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2)	ne is requ	Water-Sta Aquatic F True Aqua Hydrogen	ained Lea auna (B1 atic Plant Sulfide (Rhizosph of Reduc	3) s (B14) Odor (C1 eres on l ced Iron) Living Ro (C4)	Se	econdary Indica Surface Soil Drainage Pa Dry-Season Crayfish Bur Saturation V	ators (minimum of Cracks (B6) atterns (B10) Water Table (C2) rrows (C8)	two requir
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ENG FORM 6116-7, JUL 2018Midwest – Version 2.0

Background Information

Name:	Jordan Brennan and Alex Brown
Date:	01/26/2024
Affiliat	STONE Environmental Engineering & Science, Inc.
Addres	3700 Corporate Drive, Suite 125, Columbus, OH 43231
Phone	Number: (614)-865-1874

JordanBrennan@StoneEnvironmental.com Name of Wetland: W-1

Vegetation Communit(ies): PEM

HGM Class(es):

e-mail address:

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Refer to PJWD report

Lat/Long or UTM Coordinate 40.010119, -83.037639	
USGS Quad Name Northwest Columbus	
County Franklin	
Township Clinton	
Section and Subsection	Refer to report
Hydrologic Unit Code	Refer to report
Site Visit	01/26/2024
National Wetland Inventory Map	Refer to report
Ohio Wetland Inventory Map	Refer to report
Soil Survey	Refer to report
Delineation report/map	Refer to report

Name of Wetland: W-1		
Wetland Size (acres, hectares):		0.202 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones	s, etc.	
Refer to PJWD report		
Comments, Narrative Discussion, Justification of Category Changes:		
Refer to PJWD report		
Final score: 17	Category:	1

W-1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	V	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	V	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

	_		
#	Question	Circle one	
2	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000). Threatened or Endangered Species. Is the wetland known to contain	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

W-1

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status.	NO Go to Question 9a
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: OSU MALC Storm Sewer			Rater(s): Jordan Brennan and Alex Brown		Date: 01/26/2024
1 1 Metric 1. Wetland Area (size).					
1	1	Wether I. Wethand A	i ca (312c).		
max 6 pts.	subtotal	Select one size class and assign scores (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <2 10 to <25 acres (4 to <10.1 3 to <10 acres (1.2 to <4ha 0.3 to <3 acres (0.12 to <1. ✓ 0.1 to <0.3 acres (0.04 to < <1.1 to <0.1 acres (0.04ha) (0 pts)	0.2ha) (5 pts) ha) (4 pts)) (3 pts) 2ha) (2pts)		
1	2	Metric 2. Upland bu 	ffers and surroundi	ng land use.	
max 14 pts.	subtotal 1.0 metric 2b aver	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) ✓ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. Please enter score. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)			
11	13	Metric 3. Hydrology		onstruction. (1)	
max 30 pts.	subtotal	3a. Sources of Water. Score all that High pH groundwater (5) Other groundwater (3) ✓ Precipitation (1) Seasonal/Intermittent surfa Perennial surface water (lal 3c. Maximum water depth. Select or >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) ✓ <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologi None or none apparent (12 Recovered (7)	ce water (3) ke or stream) (5) 3d. I sly one and assign score. (2) 4	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat Seasonally inundat Seasonally satura	in (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1) ler score.
	metric 3e avera	Recovering (3) Recent or no recovery (1)	tile dike weir stormwater input	filling/grading road bed/RR trac dredging other	k
7	20	Metric 4. Habitat Al	teration and Develo	pment.	
max 20 pts.	subtotal 3 metric 4a aver	None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	y (1)		
	3 metric 4c avera 20 subtotal this pa	Recent or no recovery (1)	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme other:	itic bed removal
ast revise	d 1 Februa	ry 2001 iim			

Comments:	Site: OSU MALO	Storm Sewer	Rater(s): Jordan Br	rennan and Alex Brown	Date: 01/26/2024
Check all that apply and score as indicated. Bog (10) Bog (10) Gld growth froats (10) Mature forested wetland (5) Lake Eric coastal/fibutary wetland-serincided hydrology (5) Lake Eric coastal/fibutary wetland-serincided hydrology (5) Lake Eric coastal/fibutary wetland-serincided hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Roll (Wet Prairies (10) Roll (Wet Prairies (10) Significant migratory songbird/water fowl habital or usage (10) Significant migratory songbird/water fowl habital or usage (10) Adespory 1 Welland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. Metric 6. Plant communities, interspersion, microtopography. Score all present using 10 to 3 scale. Aqualic bed I Emergent Other Sib. hortzontal (plan view) Interspersion. Select only one. Moderately low (2) Low (1) Moderately low (2) Low (1) Sone of Invasive plants. Refer to Table 1 Offsh (Ing) (form for list, Add or deduct points for coverage VE Extensive 175% cover (-3) Spans 5-25% cover (-1) Nesrly absent (-5% cover (-5) Moderate 2-576% cover (-1) Nesrly absent (-5% cover (-1) Nesrly absent (-5% cover (-1) Sone all present using 10 to 3 scale. O Vegetated hummucks/fususuels O Nesrly absent (-5% cover (-1) Nesrly absent (-5% cover (-1) Nesrly absent (-5% cover (-1) Standing dead >25cm (10h) dbh Amphibian breeding pools Microtopography. Microtopography Cover Scale Microtopogr	20 subtotal first p	- i		Comments:	
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Score all present using 0 to 3 scale.		Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (Lake Erie coastal/tributary Lake Erie coastal/tributary Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state/f	5)	angered species (10) usage (10)	
Score all present using 0 to 3 scale. Aqualit bed Emergent O. Shrub O. Shelet or open water O. Other O. Oth	_3 17	Metric 6. Plant con	nmunities, inte	erspersion, microto	pography.
Score all present using 0 to 3 scale. Aquatic bed Emergent O Shrub Forest Mudflats Open water Other O		Go. Watland Vagatation Communiti	Nagatation	Community Cover Scale	
Aquatic bed 1 Emergent 1 Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality 2 Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality 2 Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality 3 Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality 3 Present and comprises significant part of wetland's vegetation and is of high quality 3 Present and comprises significant part of wetland's vegetation and is of high quality 3 Present and either comprises significant part of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of high quality 3 Present and either comprises significant part of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more, of wetland's vegetation and is of moderate quality or more of wetland's vegetation and is of moderate and is of moderate quality or more of wetland's vegetation and is of moderate and is of moderate and is of moderate and is of high quality vegetation and is of high quality vegetation.	max 20 pto. Gaptotal	S .			471 acres) contiguous area
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Shrub Forest Forest Significant part but is of low quality		·			
Mudflats Open water Other Othe		——I		_	· · ·
Open water Other O		Forest	2	Present and either comprises sign	nificant part of wetland's
Other 6b. horizontal (plan view) Interspersion. Select only one. High (5) Moderately high(4) Low (1) Low (1) None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage VERIANTY Extensive >75% cover (-3) Sparse 5-25% cover (-1) Nearly absent (5% cover (0) Absent (1) Other 1 Amphibian breeding pools Microtopography. Score all present using 0 to 3 scale. O Vegetated hummucks/fussucks O Coarse woody debris >15cm (6in) O Standing dead >25cm (10in) dbh 1 Amphibian breeding pools Microtopography Cover Scale O Absent (1) O Absent (1) O Absent (1) O Standing dead >25cm (10in) dbh 1 Present and comprises significant part, or more, of wetland's vegetation and is of high quality Narrative Description of Vegetation Quality Low spo diversity and/or predominance of nonnative or disturbance tolerant native species mod Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp high A predominance of enative species. Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearty absent <5% cover (0) Absent (1) Absent (1) Absent (1) Amphibian breeding pools Microtopography Cover Scale O Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality quality or in small amounts of highest quality Present in moderate or greater amounts		Mudflats		vegetation and is of moderate of	uality or comprises a small
Select only one. Vegetation and is of high quality		Open water		part and is of high quality	
Select only one. High (5) Moderately high(4) Moderatel (3) Moderately low (2) Low (1) V None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage ypha ngustifolia Microtopography. Score all present using 0 to 3 scale. O Vegetated hummucks/tussucks 0 Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale O Native Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or disturbance tolerant native species mod Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp on moderated or endangered spp on moderated presence of rare, threatened, or endangered spp absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp on Absent <1 Low 0.1 to <1ha (0.247 to 2.47 acres) Wideflat and Open Water Class Quality Mudflat and Open Water Class Quality Mudflat and Open Water Class Quality Mideflat and Open Water Class Quality Do Absent <1 Low 0.1 to <1ha (0.247 to 2.47 acres) Microtopography Cover Scale D Absent <1 Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts		Other	3	Present and comprises significant	t part, or more, of wetland's
High (5) Moderately high(4) Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Moderate 25-75% cover (-5) Moderate 25-75% cover (-1) Nearly absent <5% cover (0) Absent (1) O Coarse woody debris >15cm (6in) O Standing dead >25cm (10in) dbh 1 Amphibian breeding pools Microtopography Cover Scale Present in moderate or greater amounts		6b. horizontal (plan view) Interspers	sion.	vegetation and is of high quality	<i>'</i>
Moderately high(4) Moderately (3) Moderately low (2) Low (1) Low (1) Low (1) Moderately low (2) Moderately low (2) Low (1) Moderately low (2) Moderately low (2) Moderately plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Moderately points for coverage Moderately points for coverage Moderately points for cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) Moderately points (2) M					
Moderate (3)				-	
Moderately low (2) Low (1) Vone (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage ypha ngustifolia Moderate 25-75% cover (-5) Nearly absent <5% cover (0) Absent (1) Go. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Co. Coarse woody debris >15cm (6in) Coarse woody debris >15cm (6in) Amphibian breeding pools Moderate 25-75% cover (10) Absent (1) Amphibian breeding pools Moderate 25-75% cover (2) Absent (1) Amphibian breeding pools Moderate 1 to <4ha (0.247 to 9.88 acres) Microtopography Cover Scale Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts			low		
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to Table 1 ORAM long form for list. Add or deduct points for coverage Moderate 25-75% cover (-5)			ofor		
or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent (-1) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. 0 Vegetated hummucks/tussucks 0 Coarse woody debris >15cm (6in) 0 Standing dead >25cm (10in) dbh 1 Amphibian breeding pools Microtopography Cover Scale 0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality 3 Present in moderate or greater amounts					W/O presence of fare
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O Vegetated hummucks/tussucks 2 Moderate 1 to <4ha (2.47 to 9.88 acres)				Absent <0.1ha (0.247 acres)	
O Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh Amphibian breeding pools Microtopography Cover Scale O Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 High 4ha (9.88 acres) or more Microtopography Cover Scale O Absent 1 Present in moderate amounts or if more common of marginal quality 2 Present in moderate or greater amounts		Score all present using 0 to 3 scale.		Low 0.1 to <1ha (0.247 to 2.47 ac	res)
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Amphibian breeding pools Microtopography Cover Scale			. ,	High 4ha (9.88 acres) or more	
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1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts		1 Amphibian breeding pools			
of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts					
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quality or in small amounts of highest quality Present in moderate or greater amounts			2		t not of highest
3 Present in moderate or greater amounts			_		
			3	-	
17			3	_	
	17			and or mignoot quality	

End of Quantitative Rating. Complete Categorization Worksheets.

	circle			
		answer or		
		insert	Result	
	ē	score		
Narrative Rating	Question 1 Critical Habitat	YES NO	If yes, Category 3.	
	Question 2. Threatened or Endangered Species	YES NO	If yes, Category 3.	
	Question 3. High Quality Natural Wetland	YES NO ✓	If yes, Category 3.	
	Question 4. Significant bird habitat	YES NO ✓	If yes, Category 3.	
	Question 5. Category 1 Wetlands	YES NO ✓	If yes, Category 1.	
	Question 6. Bogs	YES NO ✓	If yes, Category 3.	
	Question 7. Fens	YES NO ✓	If yes, Category 3.	
	Question 8a. Old Growth Forest	YES NO ✓	If yes, Category 3.	
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.	
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.	
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO ✓	If yes, Category 3	
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.	
	Question 10. Oak Openings	YES NO ✓	If yes, Category 3	
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	1		
-	Metric 2. Buffers and surrounding land use	1		
	Metric 3. Hydrology	11		
	Metric 4. Habitat	7		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersion, microtopography	-3		
	TOTAL SCORE	17	Category based on score breakpoints:	

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO 🗸	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO 🗸	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	NO 🗸	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO 🗸	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO 🗸	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Cate	gory
Choose o	one Category		ategory 2 Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name.	Jordan	Brennan	and	Alex	Brown
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Date: 01/26/2024

Affiliation: STONE Environmental Engineering & Science, Inc.

Address: 3700 Corporate Drive, Suite 125, Columbus, OH 43231

Phone Number: (614)-865-1874

e-mail address:

JordanBrennan@StoneEnvironmental.com

Name of Wetland: W-2

Vegetation Communit(ies): PEM

HGM Class(es):

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Refer to PJWD report

Lat/Long or UTM Coordinate 40.010329, -83.038423	
USGS Quad Name Northwest Columbus	
County Franklin	
Township Clinton	
Section and Subsection	Refer to report
Hydrologic Unit Code	Refer to report
Site Visit	01/26/2024
National Wetland Inventory Map	Refer to report
Ohio Wetland Inventory Map	Refer to report
Soil Survey	Refer to report
Delineation report/map	Refer to report

Name of Wetland: W-2		
Wetland Size (acres, hectares):		0.084 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.		
Refer to PJWD report		
Comments, Narrative Discussion, Justification of Category Changes:		
Refer to PJWD report		
Final score : 15 Categ	ory:	1

W-2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.		✓
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	V	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

	-		
#	Question	Circle one	
2	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000). Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
	threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Oo to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	On to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

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8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status.	NO Go to Question 9a
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		0
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: 0	SU MALC	Storm Sewer	Rater(s): Jordan Brennan and Alex Brown	Date: 01/26/2024
0	0	Metric 1. Wetland A	rea (size).	
max 6 pts.	subtotal	Select one size class and assign scol) (0.2ha) (5 pts) ha) (4 pts)) (3 pts) 2ha) (2pts)	
1	1	Metric 2. Upland bu	ffers and surrounding land	use.
max 14 pts.	subtotal	WIDE. Buffers average 50 MEDIUM. Buffers average NARROW. Buffers average VERY NARROW. Buffers 2b. Intensity of surrounding land use VERY LOW. 2nd growth o LOW. Old field (>10 years	Select only one and assign score. Do not double c m (164ft) or more around wetland perimeter (7) 25m to <50m (82 to <164ft) around wetland perime e 10m to <25m (32ft to <82ft) around wetland perime average <10m (<32ft) around wetland perimeter (0). Select one or double check and average. Please or older forest, prairie, savannah, wildlife area, etc. (1), shrub land, young second growth forest.	eter (4) meter (1)) enter score. 7)
n	netric 2b aver		sidential, fenced pasture, park, conservation tillage pen pasture, row cropping, mining, construction. (1)	
10	11	Metric 3. Hydrology)
max 30 pts.	subtotal	None or none apparent (12 Recovered (7)	to regime. Score one or double check and average 100 yea	ource (nonstormwater)
m	netric 3e avera	Recovering (3) Recent or no recovery (1)	weir dredgin	d/RR track
		1	stormwater input other	
7 max 20 pts.	18 subtotal		teration and Development. e or double check and average. Please enter score.	
r	3 netric 4a aver	None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)		
		None or none apparent (9)	Check all disturbances observed	
m	3 etric 4c avera 18	Recovered (6)	mowing shrub/s: grazing herbace clearcutting selective cutting woody debris removal shrub/s:	g
	ubtotal this pa	ge rv 2001 iim	other:	

Site: OSU MAL	C Storm Sewer	Rater	(s): Jordan B	rennan and Alex Brown	Date: 01/26/2024
18			_	Comments:	
0 18	Metric :	5. Special Wetlan	ids.		
max 10 pts. subtotal	Bog Fen Old Mat Lak Lak Reli Kno	apply and score as indicated. (10) (10) growth forest (10) ure forested wetland (5) e Erie coastal/tributary wetland-re e Plain Sand Prairies (Oak Oper ct Wet Prairies (10) wn occurrence state/federal thre nificant migratory songbird/water egory 1 Wetland. See Question	estricted hydro nings) (10) eatened or enda fowl habitat or 1 Qualitative R	angered species (10) usage (10) ating (-10)	
-3 15	Metric (6. Plant commun	ities, int	erspersion, micro	topography.
max 20 pts. subtotal	 6a. Wetland \	/egetation Communities.	Vegetation	Community Cover Scale	
		ent using 0 to 3 scale.	0	Absent or comprises <0.1ha (0	.2471 acres) contiguous area
		atic bed	1	Present and either comprises s	
	1 Eme	ergent		vegetation and is of moderate	
	0 Shri			significant part but is of low q	
	0 Fore		2	Present and either comprises s	
	<u> </u>	lflats	_	•	e quality or comprises a small
		en water		part and is of high quality	, quality of complices a small
			3		ent part or mare of watland's
	Othe	er (plan view) Interspersion.	3	Present and comprises signification vegetation and is of high qual	
	Select only on				
		า (5)	Narrative D	escription of Vegetation Quality	/
		derately high(4)	low	Low spp diversity and/or predo	
		derate (3)		disturbance tolerant native sp	
		derately low (2)	mod	Native spp are dominant compo	
	Low	• • •	11100	although nonnative and/or dis	
	✓ Non	* *		can also be present, and spe	
		of invasive plants. Refer		moderately high, but generall	•
		AM long form for list. Add		threatened or endangered sp	•
		its for coverage	high	<u> </u>	<u>'</u>
		ensive >75% cover (-5)	high	A predominance of native spec	
	_			and/or disturbance tolerant no	
hragmites	· · · · · · · · · · · · · · · · · · ·	derate 25-75% cover (-3)		absent, and high spp diversity the presence of rare, threater	
ustralis		rse 5-25% cover (-1)		the presence of rare, threater	led, or endangered spp
		rly absent <5% cover (0)	Marriel and a second	1 O Wt Ol O	
		ent (1)		d Open Water Class Quality	
	6d. Microtopo		0	Absent <0.1ha (0.247 acres)	
		ent using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47	
		etated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.	88 acres)
		rse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		nding dead >25cm (10in) dbh			
	1Amı	ohibian breeding pools		raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or of marginal quality	if more common
					but not of bishoot
			2	Present in moderate amounts, quality or in small amounts of	_
			3	Present in moderate or greater	
			3	and of highest quality	amounts
15				I and or highest quality	
1 1 1 1					

End of Quantitative Rating. Complete Categorization Worksheets.

	circle				
		answer or			
		insert	Result		
		score			
Narrative Rating	Question 1 Critical Habitat	YES NO ✓	If yes, Category 3.		
	Question 2. Threatened or Endangered Species	YES NO ✓	If yes, Category 3.		
	Question 3. High Quality Natural Wetland	YES NO	If yes, Category 3.		
	Question 4. Significant bird habitat	YES NO ✓	If yes, Category 3.		
	Question 5. Category 1 Wetlands	YES NO ✓	If yes, Category 1.		
	Question 6. Bogs	YES NO ✓	If yes, Category 3.		
	Question 7. Fens	YES NO ✓	If yes, Category 3.		
	Question 8a. Old Growth Forest	YES NO ✓	If yes, Category 3.		
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO ✓	If yes, Category 3		
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
	Question 10. Oak Openings	YES NO ✓	If yes, Category 3		
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
Quantitative Rating	Metric 1. Size	0			
	Metric 2. Buffers and surrounding land use	1			
	Metric 3. Hydrology	10			
	Metric 4. Habitat	7			
	Metric 5. Special Wetland Communities	0			
	Metric 6. Plant communities, interspersion, microtopography	-3			
	TOTAL SCORE	15	Category based on score breakpoints:		

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO 🗸	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO 🗸	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	Wetland is categorized as a Category 1 wetland	NO 🗸	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO 🗸	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO 🗸	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Cate	
Choose o	ne Category	1 Ca	tegory 2 Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name.	lordan	Brennan	and	Alex	Brown
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Date: 01/26/2024

Affiliation: STONE Environmental Engineering & Science, Inc.

Address: 3700 Corporate Drive, Suite 125, Columbus, OH 43231

Phone Number: (614)-865-1874

e-mail address:

JordanBrennan@StoneEnvironmental.com

Name of Wetland: W-3

Vegetation Communit(ies): PFO

HGM Class(es):

Depression

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Refer to PJWD report

Lat/Long or UTM Coordinate 40.010514, -83.039081	
USGS Quad Name Northwest Columbus	
County Franklin	
Township Clinton	
Section and Subsection	Refer to report
Hydrologic Unit Code	Refer to report
Site Visit	01/26/2024
National Wetland Inventory Map	Refer to report
Ohio Wetland Inventory Map	Refer to report
Soil Survey	Refer to report
Delineation report/map	Refer to report

Name of Wetland: W-3		
Wetland Size (acres, hectares):		0.06 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones,	etc.	
Refer to PJWD report		
There is a structure of the structure of		
Comments, Narrative Discussion, Justification of Category Changes:		
Refer to PJWD report		
'		
Final score: 24	Category:	1

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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	V	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		√
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

	-		
#	Question	Circle one	
2	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000). Threatened or Endangered Species. Is the wetland known to contain	YES Wetland should be evaluated for possible Category 3 status Go to Question 2 YES	NO Go to Question 2
	an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland. Go to Question 3	Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

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8b	Mature forested wetlands. Is the wetland a forested wetland with	YES T	NO 🖊
	50% or more of the cover of upper forest canopy consisting of		V
	deciduous trees with large diameters at breast height (dbh), generally	Wetland should be	Go to Question 9a
	diameters greater than 45cm (17.7in) dbh?	evaluated for possible	
		Category 3 status.	
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at	YES T	NO 🚺
	an elevation less than 575 feet on the USGS map, adjacent to this		
	elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to	YES T	NO 📉
	prevent erosion and the loss of aquatic plants, i.e. the wetland is		
	partially hydrologically restricted from Lake Erie due to lakeward or	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	
		Category 3 status	
		Go to Question 10	No
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES T	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an	Go to Question 9d	Go to Question 10
	"estuarine" wetland with lake and river influenced hydrology. These	Go to Question 90	Go to Question to
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its	YES 🗔	NO 🗔
Ju	vegetation communities, although non-native or disturbance tolerant		100
	native species can also be present?	Wetland is a Category	Go to Question 9e
	Thanks opening and also so presently	3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO 🗍
	tolerant native plant species within its vegetation communities?		
		Wetland should be	Go to Question 10
		evaluated for possible	
		Category 3 status	
		0.4.0	
40		Go to Question 10	No
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be	YES	NO 🗾
	characterized by the following description: the wetland has a sandy	Wetland is a Category	Go to Question 11
	substrate with interspersed organic matter, a water table often within	3 wetland.	GO to Question 11
	several inches of the surface, and often with a dominance of the	5 Welland.	
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	present). The Ohio Department of Natural Resources Division of		
	Natural Areas and Preserves can provide assistance in confirming this		
	type of wetland and its quality.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES 🗍	NO 🚺
	dominated by some or all of the species in Table 1. Extensive prairies		
	were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	Category 3 status	Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,		-
	Montgomery, Van Wert etc.).	Complete Quantitative	
		Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: OSU MALC Storm Sewer	Rater(s): Jordan	Brennan and Alex Brov	vn Date: 01/26/2024	
0 0 Metric 1.	Wetland Area (size).			
max 6 pts. subtotal Select one size of 25 to 10 to 3 to 0.3 to 0.1 to	class and assign score. cres (>20.2ha) (6 pts) <50 acres (10.1 to <20.2ha) (5 pts) <25 acres (4 to <10.1ha) (4 pts) 10 acres (1.2 to <4ha) (3 pts) <3 acres (0.12 to <1.2ha) (2pts) <0.3 acres (0.04 to <0.12ha) (1 pt) cres (0.04ha) (0 pts)			
1 1 Metric 2.	Upland buffers and su	rrounding lar	nd use.	
WIDE MEDII NARR VERY 2b. Intensity of some control of the control	rerage buffer width. Select only one and ass. Buffers average 50m (164ft) or more aroun JM. Buffers average 25m to <50m (82 to < OW. Buffers average 10m to <25m (32ft to NARROW. Buffers average 10m to <32ft) assurrounding land use. Select one or double LOW. 2nd growth or older forest, prairie, so Old field (>10 years), shrub land, young see RATELY HIGH. Residential, fenced pastur Urban, industrial, open pasture, row croppi	nd wetland perimeter (7) 64ft) around wetland pe <82ft) around wetland pround wetland pround wetland perimeter check and average. Pleas avannah, wildlife area, etcond growth forest. (5) e, park, conservation tillage.	rimeter (4) perimeter (1) r (0) ase enter score. c. (7) age, new fallow field. (3)	
12 13 Metric 3.	Hydrology.			
High p Other V Precip Seaso Peren 3c. Maximum w V >0.7 (0 0.4 to 0.4 to 40.4 m 3e. Modification	Vater. Score all that apply. I'll groundwater (5) groundwater (3) itation (1) nal/Intermittent surface water (3) nial surface water (lake or stream) (5) ater depth. Select only one and assign scor 27.6in) (3) 0.7m (15.7 to 27.6in) (2) (<15.7in) (1) s to natural hydrologic regime. Score one of	ad. Duration in e. 4 Adaptates 3d. Duration in Reg Sea: Sea: r double check and aver	ty. Score all that apply. year floodplain (1) yeen stream/lake and other human use (1) of wetland/upland (e.g. forest), complex of riparian or upland corridor (1) undation/saturation. Score one or dbl ch ii- to permanently inundated/saturated (4 ularly inundated/saturated (3) sonally inundated (2) sonally saturated in upper 30cm (12in) (1 age. Please enter score.	(1) heck l)
Recov	ered (7) ering (3) t or no recovery (1) ditch tile dike weir ✓ stormwater inp	filling road dred		
8 21 Metric 4.	Habitat Alteration and	Developmen	t.	
Mone Recover	ood (6) (5) ately good (4) b) o fair (2) 1)	Comments:		
None	ation. Score one or double check and avera or none apparent (9) Check all disturbance	es observed		
metric 4c average	ered (6) ering (3) t or no recovery (1)	herb demoval herb dred farm	ing ent enrichment	

Site: os	U MALC	Storm Sewer	•	Rater(s): Jordan Bı	rennan and Alex Brown	Date: 01/26/2024
suk	21 ototal first pa	7	5 0	NA		Comments:	
0	21	Metric	5. Special	wetian	ds.		
max 10 pts.	subtotal	Bo Fe Old Mac Lal Lal Re Kn Sig Ca	gnificant migratory s itegory 1 Wetland. 3	nd (5) tary wetland-ur tary wetland-re les (Oak Openi l) te/federal threa ongbird/water f See Question 1	estricted hydrologs) (10) atened or enda owl habitat or Qualitative R	angered species (10) usage (10) ating (-10)	
3	24	Metric	6. Plant co	ommuni	ties, int	erspersion, microto	pography.
max 20 pts.	subtotal	ມ 6a. Wetland	Vegetation Commu	ınities.	Vegetation	Community Cover Scale	
			sent using 0 to 3 sc		0	Absent or comprises <0.1ha (0.24	
			uatic bed		1	Present and either comprises sm	
			nergent			vegetation and is of moderate of	
		⊢ —	ırub rest		2	significant part but is of low qua Present and either comprises sign	•
		<u> </u>	udflats		_	vegetation and is of moderate of	
		Op	en water			part and is of high quality	
			her		3	Present and comprises significan	
			al (plan view) Inters _l	persion.		vegetation and is of high quality	1
		Select only o			Norrativa D	escription of Vegetation Quality	
			gh (5) oderately high(4)		low	Low spp diversity and/or predomi	nance of nonnative or
			oderate (3)		1011	disturbance tolerant native spec	
		Mo	oderately low (2)		mod	Native spp are dominant compon	ent of the vegetation,
			w (1)			although nonnative and/or distu	
			one (0)	Defe		can also be present, and specie	•
			e of invasive plants. RAM long form for li			moderately high, but generally threatened or endangered spp	wo presence or rare
			ints for coverage		high	A predominance of native species	s, with nonnative spp
		Ex	tensive >75% cover	· (-5)	_	and/or disturbance tolerant nati	
		·	oderate 25-75% cov	` '		absent, and high spp diversity a	
		_	arse 5-25% cover (- arly absent <5% co			the presence of rare, threatened	1, or endangered spp
			sent (1)	ver (o)	Mudflat and	l Open Water Class Quality	
		6d. Microtop	` '		0	Absent <0.1ha (0.247 acres)	
			sent using 0 to 3 sc		1	Low 0.1 to <1ha (0.247 to 2.47 ac	<u> </u>
			getated hummucks/		2	Moderate 1 to <4ha (2.47 to 9.88	acres)
			earse woody debris anding dead >25cm		3	High 4ha (9.88 acres) or more	
			nphibian breeding p		Microtopoa	raphy Cover Scale	
			,		0	Absent	
					1	Present very small amounts or if of marginal quality	more common
					2	Present in moderate amounts, bu quality or in small amounts of h	_
					3	Present in moderate or greater ar	nounts
24						and of highest quality	

Final Score

End of Quantitative Rating. Complete Categorization Worksheets.

	circle				
		answer or			
		insert	Result		
		score			
Narrative Rating	Question 1 Critical Habitat	YES NO ✓	If yes, Category 3.		
	Question 2. Threatened or Endangered Species	YES NO ✓	If yes, Category 3.		
	Question 3. High Quality Natural Wetland	YES NO ✓	If yes, Category 3.		
	Question 4. Significant bird habitat	YES NO ✓	If yes, Category 3.		
	Question 5. Category 1 Wetlands	YES NO ✓	If yes, Category 1.		
	Question 6. Bogs	YES NO ✓	If yes, Category 3.		
	Question 7. Fens	YES NO ✓	If yes, Category 3.		
	Question 8a. Old Growth Forest	YES NO ✓	If yes, Category 3.		
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
	Question 9b. Lake Erie Wetlands - Restricted	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES NO ✓	If yes, Category 3		
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
	Question 10. Oak Openings	YES NO ✓	If yes, Category 3		
	Question 11. Relict Wet Prairies	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.		
Quantitative Rating	Metric 1. Size	0			
	Metric 2. Buffers and surrounding land use	1			
	Metric 3. Hydrology	12			
	Metric 4. Habitat	8			
	Metric 5. Special Wetland Communities	0			
	Metric 6. Plant communities, interspersion, microtopography	3			
	TOTAL SCORE	24	Category based on score breakpoints:		

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM				
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO 🗸	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM				
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO 🗸	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.				
Did you answer "Yes" to Narrative Rating No. 5	Wetland is categorized as a Category 1 wetland	NO 🗸	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM				
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO 🗸	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.				
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO 🗸	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).				
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.				
	Final Category						
Choose o	ne Category	1 Ca	tegory 2 Category 3				
	\checkmark						

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

name.	Jordan	Brennan	and	Alex	Brown
	ooraari	Dicilian	ana		

Date: 01/26/2024

Affiliation: STONE Environmental Engineering & Science, Inc.

Address: 3700 Corporate Drive, Suite 125, Columbus, OH 43231

Phone Number: (614)-865-1874

e-mail address:

JordanBrennan@StoneEnvironmental.com

Name of Wetland: W-4

Vegetation Communit(ies): PEM

HGM Class(es):

Riverine

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

Refer to PJWD report

Lat/Long or UTM Coordinate 40.009910, -83.037860	
USGS Quad Name Northwest Columbus	
County Franklin	
Township Clinton	
Section and Subsection	Refer to report
Hydrologic Unit Code	Refer to report
Site Visit	01/26/2024
National Wetland Inventory Map	Refer to report
Ohio Wetland Inventory Map	Refer to report
Soil Survey	Refer to report
Delineation report/map	Refer to report

Name of Wetland: W-4		
Wetland Size (acres, hectares):		0.118 acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.		
Refer to PJWD report		
Comments, Narrative Discussion, Justification of Category Changes:		
Refer to PJWD report		
Final score : 24 Cate	egory:	1

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Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	\checkmark	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	V	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of	YES 🗔	NO 🚺
	a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover	Wetland should be evaluated for possible Category 3 status Go to Question 2	Go to Question 2
	has had critical habitat proposed (65 FR 41812 July 6, 2000).	VE0.	NO C
	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	Wetland is a Category 3 wetland.	Go to Question
		Go to Question 3	
	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	Wetland is a Category 3 wetland	Go to Question
		Go to Question 4	
ļ	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland	Go to Question
		Go to Question 5	
i	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	Go to Question
	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question
•	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question
а	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question

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8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status.	NO Go to Question 9a
		Go to Question 9a	
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: 09	SU MALC	Storm Sewer	Rater(s): Jordan Brennan and A	lex Brown	Date: 01/26/2024
	4	Metric 1. Wetland A	rea (size)		
1	1	Wellic I. Welland A	i ea (512e).		
max 6 pts.	subtotal	Select one size class and assign scor >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <2 10 to <25 acres (4 to <10.1 3 to <10 acres (1.2 to <4ha 0.3 to <3 acres (0.12 to <1. ✓ 0.1 to <0.3 acres (0.04 to < <1.2 to <4ha 0.1 to <0.3 acres (0.04 to < 0.1 acres (0.04ha) (0 pts)) 0.2ha) (5 pts) ha) (4 pts)) (3 pts) 2ha) (2pts)		
1	2	-	ffers and surroundin		
max 14 pts.	subtotal 1.0 etric 2b aver	WIDE. Buffers average 50 MEDIUM. Buffers average NARROW. Buffers average ✓ VERY NARROW. Buffers a 2b. Intensity of surrounding land use. VERY LOW. 2nd growth of LOW. Old field (>10 years) MODERATELY HIGH. Res	Select only one and assign score. Do not meet the control of the c	neter (7) Interpretation of the control of the con	ow field. (3)
12	14	Metric 3. Hydrology		` '	
max 30 pts.	subtotal 5 etric 3e avera	None or none apparent (12 Recovered (7) Recovering (3) Recover or no recovery (1)	ce water (3) ke or stream) (5) sly one and assign score. (2) c regime. Score one or double check and Check all disturbances observed	Part of wetland/u Part of riparian or Iration inundation/sate Semi- to permane Regularly inundat Seasonally inund Seasonally satura	inin (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1) ter score.
7	21	Metric 4. Habitat Al	teration and Develop	ment.	
max 20 pts.	subtotal 2 etric 4a aver	None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) Ab. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	=	mments:	
[3	None or none apparent (9) Recovered (6)	Check all disturbances observed		aoval
_ su	etric 4c avera	Recovering (3) Recent or no recovery (1)	" — ·	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme other:	itic bed removal
last revised	1 Februa	v 2001 iim			

Site: os	U MALC	Storm Se	wer	Rat	er(s): Jordan B	rennan and Alex Brown	Date: 01/26/2024
sub	21 ototal first pa	7				Comments:	
0	21	Metr	IC 5.	Special Wetla	ands.		
max 10 pts.	subtotal		Bog (10 Fen (10 Old gro Mature Lake Ei Lake Pi Relict V Known Significa Catego	wth forest (10) forested wetland (5) rie coastal/tributary wetlant rie coastal/tributary wetlant ain Sand Prairies (Oak Control Vet Prairies (10) occurrence state/federal ant migratory songbird/wary 1 Wetland. See Quest	nd-unrestricted hydro nd-restricted hydro openings) (10) threatened or enda ater fowl habitat or tion 1 Qualitative R	angered species (10) usage (10) Rating (-10)	
3	24	Metri	ic 6.	Plant commu	ınities, int	erspersion, microto	opography.
max 20 pts.	subtotal	∟ 6a. Wetla	and Veg	etation Communities.	Vegetation	Community Cover Scale	
			_	using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
		<u> </u>	Aquatic		1	Present and either comprises sm	
		1	Emerge Shrub	ent		vegetation and is of moderate of	
			Forest		2	significant part but is of low qua Present and either comprises sig	
			Mudflat	S	_	vegetation and is of moderate	
			Open w	ater		part and is of high quality	. , .
			Other_		3	Present and comprises significar	
				an view) Interspersion.		vegetation and is of high quality	У
		Select on	• *	\	Norrativa D	escription of Vegetation Quality	
			High (5)	tely high(4)	low	Low spp diversity and/or predom	inance of nonnative or
			Modera		1011	disturbance tolerant native spe	
			Modera	tely low (2)	mod	Native spp are dominant compor	nent of the vegetation,
			Low (1)			although nonnative and/or distu	
			None (0	•		can also be present, and speci	•
				nvasive plants. Refer long form for list. Add		moderately high, but generally threatened or endangered spp	w/o presence of rare
				or coverage	high	A predominance of native specie	s, with nonnative spp
				ve >75% cover (-5)	3	and/or disturbance tolerant nat	
			4	te 25-75% cover (-3)		absent, and high spp diversity	
			4	5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
		J	Absent	absent <5% cover (0)	Mudflat and	d Open Water Class Quality	
		6d. Micro	4	` '	0	Absent <0.1ha (0.247 acres)	
				using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	cres)
		1	4 -	ted hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.8	8 acres)
		0	4	woody debris >15cm (6ir	· —	High 4ha (9.88 acres) or more	
		0	4	g dead >25cm (10in) dbh ian breeding pools		graphy Cover Scale	
			1, 111151110	an brooding pools	0	Absent	
					1	Present very small amounts or if of marginal quality	more common
					2	Present in moderate amounts, but quality or in small amounts of h	•
					3	Present in moderate or greater a	
\Box						and of highest quality	
ı /4							

Final Score

End of Quantitative Rating. Complete Categorization Worksheets.

Answer or insert Result score Narrative Rating Question 1 Critical Habitat YES NO If yes, Category 3.	
Score Narrative Rating Question 1 Critical Habitat YES NO If yes, Category 3.	
Narrative Rating Question 1 Critical Habitat YES NO If yes, Category 3.	
Question 2. Threatened or Endangered YES NO If yes, Category 3. Species	
Question 3. High Quality Natural Wetland YES NO If yes, Category 3.	
Question 4. Significant bird habitat YES NO If yes, Category 3.	
Question 5. Category 1 Wetlands YES NO If yes, Category 1.	
Question 6. Bogs YES NO If yes, Category 3.	
Question 7. Fens YES NO If yes, Category 3.	
Question 8a. Old Growth Forest YES NO If yes, Category 3.	
Question 8b. Mature Forested Wetland YES NO If yes, evaluate for Category 3; may also b	ре
Question 9b. Lake Erie Wetlands - YES NO If yes, evaluate for Category 3; may also be 1 or 2.	ре
Question 9d. Lake Erie Wetlands – YES NO If yes, Category 3 Unrestricted with native plants	
Question 9e. Lake Erie Wetlands - YES NO If yes, evaluate for Category 3; may also be 1 or 2.	ре
Question 10. Oak Openings YES NO If yes, Category 3	
Question 11. Relict Wet Prairies YES NO Category 3; may also b 1 or 2.	ре
Quantitative Metric 1. Size Rating	
Metric 2. Buffers and surrounding land use	
Metric 3. Hydrology 12	
Metric 4. Habitat 7	
Metric 5. Special Wetland Communities 0	
Metric 6. Plant communities, interspersion, microtopography	
TOTAL SCORE 24 Category based on scoop breakpoints:	ore

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO 🗸	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	NO 🗸	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	Wetland is categorized as a Category 1 wetland	NO 🗸	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	Wetland is assigned to the appropriate category based on the scoring range	NO 🗸	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO 🗸	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.
		Final Cate	
Choose o	ne Category		tegory 2 Category 3
	\checkmark		

End of Ohio Rapid Assessment Method for Wetlands.

APPENDIX D





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ohio Ecological Services Field Office 4625 Morse Road, Suite 104 Columbus, OH 43230-8355 Phone: (614) 416-8993 Fax: (614) 416-8994

In Reply Refer To: January 23, 2024

Project Code: 2024-0039512

Project Name: OSU MALC Storm Sewer

Subject: List of threatened and endangered species that may occur in your proposed project

location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

Project code: 2024-0039512

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Project code: 2024-0039512 01/23/2024

Attachment(s):

Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ohio Ecological Services Field Office 4625 Morse Road, Suite 104 Columbus, OH 43230-8355 (614) 416-8993

PROJECT SUMMARY

Project Code: 2024-0039512

Project Name: OSU MALC Storm Sewer

Project Type: Drainage Project

Project Description: Storm sewer improvements.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.010349250000004,-83.03868485920825,14z



Counties: Franklin County, Ohio

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515 CLAMS	Proposed Endangered
NAME	STATUS
Salamander Mussel <i>Simpsonaias ambigua</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6208	Proposed Endangered
INSECTS NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Project code: 2024-0039512 01/23/2024

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

Project code: 2024-0039512 01/23/2024

IPAC USER CONTACT INFORMATION

Agency: STONE Environmental, Engineering, and Science

Name: Jordan Brennan

Address: 3700 Corporate Dr Suite 125

City: Columbus

State: OH Zip: 43231

Email jordanbrennan@stoneenvironmental.com

Phone: 5672773571



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
Tara Paciorek, Chief
2045 Morse Road – Bldg. E-2
Columbus, Ohio 43229

Phone: (614) 265-6661 Fax: (614) 267-4764

February 22, 2024

Jordan Brennan STONE Environmental Engineering & Science 3700 Corporate Drive, Suite 125 Columbus, Ohio 43231

Re: 24-0094_OSU MALC Storm Sewer

Project: The proposed project involves storm sewer improvements.

Location: The proposed project is located in Clinton Township, Franklin County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state, or federal agency nor relieve the applicant of the obligation to comply with any local, state, or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following data within one mile of the project area:

- 1. Lark Sparrow (Chondestes grammacus), E
- 2. Creek Heelsplitter (Lasmigona compressa), SC
- 3. Wavy-rayed Lampmussel (Lampsilis fasciola), SC
- 4. Elktoe (Alasmidonta marginata), SC

Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened. The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features.

Location records for the species listed above are provided in a pdf map attachment to this letter per your request. Locations are shown in blue, and labels correspond to the numbers above. Species location information will not be disclosed, published, or distributed beyond the scope of your project.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an area is not a statement that rare species or unique features are absent from that area.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the little brown bat (*Myotis lucifugus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH \geq 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered

clubshell (*Pleurobema clava*)
rayed bean (*Villosa fabalis*)
northern riffleshell (*Epioblasma torulosa rangiana*)
snuffbox (*Epioblasma triquetra*)
purple cat's paw (*Epioblasma o. obliquata*)

Federally Threatened

rabbitsfoot (Quadrula cylindrica cylindrica)

State Endangered

elephant-ear (Elliptio crassidens crassidens) pocketbook (Lampsilis ovata) long solid (Fusconaia maculata maculate) washboard (Megalonaias nervosa) Ohio pigtoe (Pleurobema cordatum)

State Threatened

pondhorn (*Uniomerus tetralasmus*) Salamander Mussel (*Simpsonaias ambigua*)

Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the following listed fish species.

State Endangered

goldeye (*Hiodon alosoides*) shortnose gar (*Lepisosteus platostomus*) Iowa darter (*Etheostoma exile*) spotted darter (*Etheostoma maculatum*) northern brook lamprey (*Ichthyomyzon fossor*) tonguetied minnow (*Exoglossum laurae*) popeye shiner (*Notropis ariommus*)

State Threatened

lake chubsucker (*Erimyzon sucetta*) paddlefish (*Polyodon spathula*)

The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the black-crowned night-heron (Nycticorax nycticorax), a state-threatened bird. Night-herons are so named because they are nocturnal, conducting most of their foraging in the evening hours or at night, and roost in trees near wetlands and waterbodies during the day. Night herons are migratory and are typically found in Ohio from April 1 through December 1 but can be found in more urbanized areas with reliable food sources year-round. Black-crowned night-herons primarily forage in wetlands and other shallow aquatic habitats, and roost in trees nearby. These night-herons nest in small trees, saplings, shrubs, or sometimes on the ground, near bodies of water and wetlands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 through July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The <u>local floodplain administrator</u> should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew Environmental Services Administrator

