



3.0 JURISDICTIONAL WATERS INVESTIGATION

A field investigation of the site was conducted by AMEC Environment & Infrastructure, Inc. (AMEC) on May 2, 2013 to determine the location and extent of potential Waters of the United States, including streams and wetlands. A follow up survey was conducted by AMEC on May 7, 2014 to assess an additional five acres of land. EMH&T conducted an additional field investigation of the site on July 14, 2014 in order to (1) verify the location and characteristics of the features previously identified by AMEC and (2) investigate a suspected stream channel in the southern portion of the site. All field investigations were conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to Corps of Engineers Wetlands Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010). A Trimble Handheld Global Positioning (GPS) unit (sub-meter accuracy) was used to delineate the potential streams and wetlands identified within the project area.

3.1 Delineation Investigation Results

A total of three streams and one pond were identified on the 40-acre property and are summarized in Table 1. No wetlands were observed on the site. Exhibit 7 (provided in Section 6) shows the location of identified surface water features on the 40-acre site. A copy of the AMEC Preliminary Jurisdictional Waters Determination (revised May 2014) and EMH&T's letter revising the delineation (dated July 18, 2014) are included at the end of this section as Attachment 3A. Photographs of the pond and streams are included in Attachment 3B.

TABLE 1
Onsite Surface Water Features Summary

Name	Flow Regime	Length on Site (linear feet)	Area on Site (acres)
Stream 1	Ephemeral	540	-
Stream 2	Intermittent	950	-
Stream 3	Ephemeral	28	-
Pond 1	Online	-	4.1
Site Total	-	1,518	4.1

3.2 Stream Assessment / Determination of Existing Use

The Headwater Macroinvertebrate Field Evaluation Index (HMFEl), as presented in the *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (Version 3.0)* (Ohio EPA, 2012) and the Index of Biotic Integrity (IBI), as presented in the *Biological Criteria for the Protection of Aquatic Life: Volumes II-III* (Ohio EPA, 1987, 1989, 2014), was used to assess the relative quality and function of the aquatic communities of the streams onsite. These assessments were then used to support assignment of an aquatic life use designation to each stream, i.e. warmwater habitat (WWH), exceptional warmwater habitat (EWH), modified warmwater habitat (MWH), coldwater habitat (CWH) or limited resource water (LRW), as defined in rule 3745-1-07 of the Ohio Administrative Code (OAC).



3.2.1 Headwater Macroinvertebrate Field Evaluation Index

The HMFEL is a rapid bio-assessment field sampling method designed by Ohio EPA to assess the macroinvertebrate communities of headwater streams. The HMFEL uses field level identification at the Family or Order taxonomy level to classify different assemblages of benthic macroinvertebrates found in headwater streams. Three scoring categories are used to derive the HMFEL score, which is then used to assign an appropriate Primary Headwater Habitat (PHWH) stream classification. These classes include Class I PHWH (HMFEL Score < 7), Class II PHWH (HMFEL Score 7-19) and Class III PHWH (HMFEL Score ≥ 20). The HMFEL and PHWH classification cannot be used to establish existing aquatic life use per OAC 3745-1-07; however, they provide a qualitative evaluation of the benthic macroinvertebrate community and stream conditions.

3.2.2 Index of Biotic Integrity

The IBI is a measure of fish community integrity based upon 12 metrics which are aggregated into a summary IBI score. The metrics can be grouped into three main categories, species richness and composition, fish abundance and condition, and trophic composition. The maximum IBI value obtainable is 60 and the minimum is 12. In order to determine aquatic life use, the results of the IBI assessment are compared against the biological criteria for WWH, EWH and MWH habitats in the appropriate ecoregion, as presented in Table 7-15 of Ohio Administrative Code (OAC) 3745-1-07. The site is located in the Eastern Corn Belt Plains (ECBP) Ecoregion. Per these criteria, a headwater IBI of 24 is indicative of MWH; a headwater IBI of 36-45 is indicative of WWH; and a headwater IBI of 46-60 is indicative of EWH.

3.2.3 Results of Stream Assessment

Three streams on the site qualify as headwaters streams, having watersheds less than one square mile. Based on the USACE determination, all three onsite streams are classified as jurisdictional. These streams, identified as Stream 1 (Photographs 1 and 4), Stream 2 (Photographs 5 and 6) and Stream 3 (Photograph 7) were evaluated by EMH&T on August 15, 2014. The datasheets for these evaluations are attached at the end of this section (Attachment 3C). The results of the evaluation are provided below:

Stream 1: Pond 1 separates Stream 1 into two separate segments which, based on visual appearance, are distinctly different; therefore, each segment of Stream 1 was evaluated separately. The segment of Stream 1 upstream of Pond 1 was observed to be a modified channel, with areas of ponded water and no discernable flow. The substrate was silt and muck, with limited embedded gravel. The areas of pooled water were searched thoroughly for macroinvertebrates for approximately 20 minutes, but none were observed. In addition, no fish were observed. Thus an HMFEL and IBI score were not calculated. The segment downstream of Pond 1, also a modified channel, was observed to be a dry ephemeral channel. The dominant substrate type was silt, with small quantities of gravel and cobble observed. As the channel was dry, no HMFEL or IBI was completed. Based on these results, it appears that Stream 1 is incapable of supporting and maintaining “a balanced, integrated, adaptive community of warmwater aquatic organisms” (per OAC 3745-1-07), likely owing to past stream channel modifications. Accordingly, Stream 1 (both segments) is classified as an ephemeral MWH stream.

Stream 2: Two separate segments of Stream 2 are located on the property, one in the northern portion of the property (RM 0.4) and one in the southern portion of the property (RM 0.6). Based

on visual appearance these segments appeared similar. As only the northern segment is proposed to be impacted, this segment was selected for evaluation. Stream 2 was observed to be a natural channel. At the time of the assessment, there was no discernable flow. Water was ponded in isolated pools, approximately 8 inches deep. The dominant substrate observed was silt, with lesser amounts of sand, gravel and cobble. Two areas of pooled water (approximately 95 meters total) were searched thoroughly for macroinvertebrates for approximately 30 minutes. Only three individuals were encountered, including two dragonfly nymphs (Anisoptera) and one aquatic worm (Oligochaeta), resulting in an HMFEL score of 3. The pools were also sampled for fish, using a fine mesh benthic invertebrate net, for approximately 20 minutes. Approximately 12 creek chubs (*Semotilus atromaculatus*) were caught. This sample was insufficient to calculate an IBI score. In addition, approximately six green frogs (*Lithobates clamitans melonota*) were observed at the margins of the ponded areas. Based on these results, it appears that Stream 2 is incapable of supporting and maintaining a “balanced, integrated, adaptive community of warmwater aquatic organisms,” and was classified as an intermittent MWH stream.

Stream 3: Stream 3 was observed to be a modified, dry channel with one small area of ponded water and no discernable flow. The dominant substrate observed was silt, with limited sand, gravel and cobble. Numerous broken drain tiles were also observed in the channel. The area of ponded water was searched thoroughly for macroinvertebrates and fish, but none were observed. Thus no HMFEL or IBI was completed. Based on these results, Stream 3 was classified as MWH with ephemeral flow.

All streams on the approximately 40-acre site and their assigned existing aquatic life use are presented in Table 2.

TABLE 2
Determination of Existing Stream Use Summary

Stream ID	Stream Name	Flow Regime	Onsite Length (feet)	HMFEL	IBI	ALU
1 (Upstream Pond 1)	UNT of Stream 2	Ephemeral	184	--	--	MWH
1 (Downstream Pond 1)	UNT of Stream 2	Ephemeral	356	--	--	MWH
2 (Northern Segment)	UNT of Mill Creek	Intermittent	578	3	--	MWH
2 (Southern Segment)	UNT of Mill Creek	Intermittent	372	NA	NA	MWH
3	UNT of Stream 2	Ephemeral	28	--	--	MWH

3.3 Ponds

There is one pond located on the approximately 40-acre site. Pond 1 (Photographs 2 and 3) is an approximately 4.1-acre pond located on-line with Stream 1. Pond 1 was excavated on the site between 1961 and 1973 as part of the construction of the US Route 33/36 interchange. Based on the USACE determination (Attachment 4A), Pond 1 is jurisdictional.



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ATTACHMENT 3A
JURISDICTIONAL WATERS INVESTIGATION



**PRELIMINARY JURISDICTIONAL
DETERMINATION OF WETLANDS
AND OTHER WATERS
FOR
KROGER N-549
US 36/33 AND WEST 5TH ST
MARYSVILLE, UNION COUNTY, OHIO**

Prepared for:

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**MAY 2013
(REVISED MAY 2014)**

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
2.0 DESKTOP SURVEY	1
2.1 Topography and Site Drainage	2
2.2 NRCS Soils.....	2
2.3 Wetlands Inventory Mapping.....	3
3.0 FIELD DELINEATION	3
3.1 Wetlands and Other Surface Waters.....	3
3.2 Upland Areas within Project Area.....	6
4.0 CONCLUSIONS.....	6
5.0 REFERENCES.....	7

LIST OF TABLES

Table 1	Summary of Surface Water Features on the Subject Property
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LIST OF FIGURES

Figure 1	USGS Topographic Map
Figure 2	Project Area Map
Figure 3	NRCS Soils Map
Figure 4	National Wetlands Inventory (NWI) Map
Figure 5	Wetlands and other Surface Waters

LIST OF APPENDICES

Appendix A	USACE Wetland Field Data Sheets
Appendix B	Site Photographs
Appendix C	Historical Topographic Maps and Aerial Photographs
Appendix D	Approved USACE Jurisdictional Determination Form

ACRONYMS AND ABBREVIATIONS

AMEC	AMEC Environment & Infrastructure, Inc.
CWA	Clean Water Act
GPS	Global Positioning System
HUC	Hydrologic Unit Code
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OEPA	Ohio Environmental Protection Agency
PFO	Palustrine Forested
PUB	Palustrine Unconsolidated Bottom
US	United States
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey

1.0 INTRODUCTION

AMEC Environment & Infrastructure, Inc. (AMEC) conducted a delineation of wetlands and other regulated waters within the proposed Kroger N-549 property (project area) located southeast of the US-36/33 and West 5th Street intersection in Marysville, Union County, Ohio on 2 May 2013. During this initial May 2013 site visit, an approximately 35-acre parcel was examined. During the preliminary design phase, it was determined that additional land was needed adjacent to West 5th Street to accommodate the proposed Kroger N-549 store and fuel center, and that the southern-most portion of the original parcel would not likely be acquired. Thus, AMEC re-visited the site on 7 May 2014 to assess the additional 5-acres of land. The 40-acre project area for this delineation includes the original 35-acre parcel, the West 5th Street right-of-way, and a 4-acre parcel to the east. The revised project area is shown in **Figure 1**. The approximate geographic center of the site is located at Latitude 40° 14' 24.26" N and Longitude -83° 23' 44.965" W.

The approximately 40-acre project area is undeveloped with the exception of a farm house in the north-central portion of the site. Land cover within the project area consists primarily of grassland and a 4.1-acre pond with the exception of the wooded areas along the far eastern and southern boundaries. Surrounding land use generally consists of the US-33/36 cloverleaf interchange to the west, West 5th Street and a cemetery to the north, and a large woodlot (Maclvor Woods Nature Preserve) to the south. Residential and commercial land uses are east of the project area and woodlot (see **Figure 2**).

The purpose of this wetland delineation was to identify and demarcate the outer boundaries of wetlands and other surface waters within the project area that could potentially be regulated by the United States Army Corps of Engineers (USACE) as “waters of the United States (US)” or by the Ohio Environmental Protection Agency (OEPA). Waters of the US include wetlands and open waters (e.g., streams, ponds). OEPA regulates isolated wetlands in the State of Ohio in accordance with House Bill 231, which established a permanent permitting process for isolated wetlands in Ohio. Provisions for this bill were incorporated into ORC 6111.021 - .029.

The initial field delineation was conducted on 2 May 2013 by Jen Warf and Nancy Cho of AMEC, and a follow up delineation was conducted on 7 May 2014. During this field survey, information was gathered following the routine three parameter approach to wetland delineation as published by the *USACE Regional Supplement to Corps of Engineers Wetlands Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010; hereafter “The Midwest Manual”) and *Corps of Engineers Wetlands Delineation Manual* (USACE 1987; “The 1987 Manual”). Where differences occur in the two documents, this regional supplement takes precedence over the 1987 Manual for applications in the Midwest Region. The category of a wetland in Ohio must also be determined when planned activities could result in an adverse impact. The Ohio Rapid Assessment Method (ORAM) for Wetlands is used to determine the appropriate wetland classification per Ohio’s Water Quality Standards (WQS) (Mack 2001).

2.0 DESKTOP SURVEY

A desktop survey was conducted to develop a preliminary understanding of the possible extent of wetlands in advance of the field delineation. The desktop survey included a review of available information, including United States Geological Survey (USGS) 7.5-minute quadrangle topographic maps,

US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps, United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil data, Ohio Wetland Inventory Maps, and aerial photographs of the site.

2.1 Topography and Site Drainage

The project area is located in the northeast quadrant of the USGS Milford Center, Ohio Topographic Quadrangle. The site elevation ranges from approximately 933 feet to 1,033 feet above mean sea level. The project area is somewhat hilly with the overall site sloping to the south and east toward the unnamed tributary to Mill Creek. This unnamed tributary is shown as an intermittent “blue-lined” stream on the USGS topographic map; this stream converges with Mill Creek approximately 1,700 feet northeast of the northern site boundary (see **Figure 1**). The project area is located within the Upper Scioto Watershed (Hydrologic Unit Code [HUC]: 05060001) (USEPA 2013).

2.2 NRCS Soils

According to the Web Soil Survey, there are five mapped soil types within the project area, as illustrated in **Figure 3**. A brief description of the five soil types (from most to least abundant) is found below (NRCS 2013; NRCS 2012):

- **Nappanee silt loam, 2 to 6 percent slopes (13.3 acres)** – Nappanee silt loams occur in the northwest and central portions of the project area; they are somewhat poorly drained soils. Typically, the surface layer is silt loam and is about 7 inches thick with silty clay below it. This soil is not typically flooded or ponded. The water table is typically about 6 to 12 inches below the ground surface. This soil map unit is on the National Hydric Soils list. About 5 percent of this map unit, when found in depressional areas, meets the criteria for a hydric soil.
- **St. Clair silt loam, 6 to 12 percent slopes, moderately eroded (12.4 acres)** – St. Clair silt loams with 6 to 12 percent slopes occur along the west-central and south-eastern site boundaries; they are moderately well drained soils. Typically, the surface layer is silt loam and is about 8 inches thick with clay below it from 8 to 28 inches. This soil is not typically flooded or ponded. The water table is typically about 18 to 24 inches below the ground surface. This soil map unit is on the National Hydric Soils list. About 5 percent of this map unit, when found in drainage-ways, meets the criteria for a hydric soil.
- **St. Clair silt loam, 2 to 6 percent slopes (4.6 acres)** – St. Clair silt loams with 2 to 6 percent slopes are found along the southwestern site boundary. Soil characteristics are similar to the soil map unit with 6 to 12 percent slopes described above.
- **Morley silt loam, 2 to 6 percent slopes (0.7 acre)** – Morley silt loam occur in the northeastern portion of the project area; they are moderately well drained soils. The surface layer is silt loam and ranges from 0 to 10 inches with clay occurring between 10 to 24 inches. This soil is not typically flooded or ponded. The water table is typically about 12 to 24 inches below the ground surface. This soil map unit is on the National Hydric Soils list. About 10 percent of this map unit when found in depressions meets the criteria for a hydric soil.
- **St. Clair silt loam, 6 to 12 percent slopes (<0.1 acre)** – St. Clair silt loams with 6 to 12 percent slopes are found in two small areas along the southern boundary. With the exception of this map

unit being slightly less eroded, soil characteristics are similar to the moderately eroded soil map unit with 6 to 12 percent slopes described above.

2.3 Wetlands Inventory Mapping

The National Wetland Inventory (NWI), Ohio Wetland Inventory, and USGS National Hydrography Dataset (NHD) mapping data for the project area was reviewed (see **Figure 4**). According to NWI mapping, there is a PUBGh wetland (palustrine unconsolidated bottom, intermittently exposed, dikes/impounded) within the project area. This pond is classified as an open water feature on Ohio Wetland Inventory mapping. No other wetlands are mapped within or in the immediate vicinity of the project area. According to NHD mapping, there is a stream that runs east-west through the northern portion of the property; this stream runs through the pond (impoundment) denoted on the wetland mapping. The NHD mapping also depicts a stream that runs adjacent to the east side of the property boundary.

3.0 FIELD DELINEATION

The field delineation was conducted on 2 May 2013 by Jen Warf and Nancy Cho of AMEC, and follow up survey was conducted on 7 May 2014 to assess an additional 5 acres of land. A Trimble 2005 GeoXT Handheld Global Positioning (GPS) unit (sub-meter accuracy) was used to delineate potential streams and wetlands within the project area.

The standard methods and procedures, as outlined in The Midwest Region Corps Manual and the 1987 Manual, were used to assess, identify, and delineate the wetlands and other waters of the US located within the Project Area. For an area to be classified as a wetland, three conditions must be present: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soil. Areas that may be periodically wet, but do not meet the requisite criteria, are not classified as wetlands.

3.1 Wetlands and Other Surface Waters

Based on AMEC's site reconnaissance, no wetlands occur within the 40-acre project area. One small area in the southern portion of the site, identified as SP1 on **Figure 5**, exhibited hydrological indicators, including drainage patterns and water stained leaves. While some drainage appears to occur in the lower portion of this narrow wooded area, it appears to flow fairly quickly through this area toward the unnamed tributary to Mill Creek. No defined bed and bank were observed. In addition, the area did not meet hydric soil or hydrophytic wetland vegetation criteria (see **Photograph 1** in **Appendix B**). A copy of the Wetland Determination Data Form – Midwest Region documenting site characteristics within this area is provided in **Appendix A**.

While no wetlands were observed, other surface waters were documented on the property. Surface waters observed on the property are summarized in **Table 1** and illustrated on **Figure 5**. Additional information on these features is provided below.

Table 1. Summary of Surface Water Features on the Subject Property

Surface Water Feature	Description	Jurisdictional Status †	Acres or Feet
Pond	An open water feature that receives some intermittent water flow from Stream Segment 1 and is connected to Stream 2 via a culvert. This pond appears to have been excavated when the US 36/33 interchange was developed at West 5 th Street. Based on historical aerials and topographic maps (see Appendix C), this development occurred between 1961 and 1973. The pond is currently fed by a 30" storm sewer that drains the interior of the interchange, which outlets into the pond via a 24" pipe.	Jurisdictional	4.1 acres
Stream Segment 1	Drainage channel with defined bed and bank that appears to exhibit intermittent flow; it is located on the northwest portion of the property and drains into the pond. This drainage feature originates at a culvert beneath US 36/33 and terminates at the 4.1-acre pond. If the pond is determined to be non-jurisdictional, it is anticipated this stream segment would be considered non-jurisdictional as well.	Jurisdictional	184 feet
Stream Segment 2	Drainage channel with defined bed and bank that appears to exhibit intermittent flow; it is located on the northeast portion of the property and is connected to the pond via a culvert. This stream flows directly into the unnamed tributary to Mill Creek. Based on historical aerials and USGS topographic maps, this stream was modified over the years, but has been historically on-site (see Appendix C).	Jurisdictional	264 feet
Stream Segment 3a	This stream segment is part of the unnamed tributary to Mill Creek that is depicted as an intermittent stream on the USGS topographic map (see Figure 1 and Appendix C). This segment represents the portion of this stream that occurs within the southern portion of the project area.	Jurisdictional	372 feet
Stream Segment 3b	This stream segment includes the downstream portion of the unnamed tributary to Mill Creek that is depicted as an intermittent stream on the USGS topographic map (see Figure 1 and Appendix C). This segment represents the portion of this stream that occurs within the northeastern portion of the project area.	Jurisdictional	578 feet
Roadside Ditch	This ditch is located immediately south of West 5 th Street within the right-of-way. It initiates near the 36/33 interchange, extends 272 feet, and then enters a culvert. This stormwater collection ditch consists of an isolated channel that appears to be ephemeral in nature.	Not jurisdictional	272 feet
Concrete Conveyance	A concrete conveyance was observed immediately south of West 5 th Street that conveys stormwater runoff during peak flows. Runoff likely occurs rapidly in this region due to the steep slope in this portion of the right-of-way.	Not jurisdictional	182 feet

† While only the USACE can make a final jurisdictional determination, there is a high likelihood that the surface water features denoted above as jurisdictional would be regulated by USACE and OEPA in accordance with Sections 404 and 401 of the Clean Water Act, respectively. Any impacts to these regulated waterbodies would require a permit from these agencies.

The approximately 4.1-acre pond identified on NWI and Ohio Wetland Inventory mapping was observed on-site. With the exception of a narrow riparian corridor along the eastern side of the pond with upland species (e.g., amur honeysuckle [*Lonicera macckii*], multiflora rose [*Rosa multiflora*], autumn olive [*Elaeagnus umbellata*]), the pond was devoid of a riparian corridor. The banks of the pond were displaying signs of moderate to severe erosion particularly along the northern bank (see **Figure 5** and **Photographs 2 – 5** in **Appendix B**).

A small drainage channel with a defined bed and bank was observed west of the pond that had flowing water in it at the time of the site visit. The channel started at the culvert beneath US 36/33, and extended east approximately 184 feet before entering the pond. An oil sheen was observed within this drainage channel. Vegetation along the banks was fairly sparse, but generally consisted of amur honeysuckle, multiflora rose, and bull thistle (*Cirsium vulgare*). Water levels were 6 inches at the time of the site visit, and the width of the channel at the ordinary high water mark (OHWM) was approximately 1-foot. The channel substrate consisted of silt and clay (see **Figure 5** and **Photographs 5 – 6** in **Appendix B**).

A small drainage channel with a defined bed and bank was also observed approximately 100 feet from the eastern boundary of the pond. An overflow outlet culvert for the pond was observed at the edge of the pond that outlets where the stream channel begins again. The culvert was likely placed to accommodate the trail within this portion of the project site. The channel extends east approximately 221 feet before entering another small culvert (approximately 15 feet) that appears to be placed to also accommodate vehicle passage. This channel daylighted and continues east for another 43 feet on the property, eventually converging with the unnamed tributary to Mill Creek outside the project area. Water levels were approximately 2 inches at the time of the site visit and concentrated in the center of the channel. The width of the channel at the OHWM ranged from approximately 1 to 3 feet. A narrow riparian corridor was present in some portions of the drainage channel. The channel substrate consisted of silt with some woody debris (see **Figure 5** and **Photographs 7 – 12** in **Appendix B**).

Approximately 454 feet of the unnamed tributary to Mill Creek (Stream Segments 3a and 3b) depicted as an intermittent blue line stream on the USGS topographic map occurs within the project area. The remainder of this stream lies outside the project area, but in some cases it meanders immediately adjacent to the property boundary. Water levels were approximately 6 inches at the time of the site visits in both Stream Segments 3a and 3b, and the width of the channel at the ordinary high water mark (OHWM) was approximately 5 to 6 feet in Stream Segment 3a and approximately 10 to 12 feet wide in Stream Segment 3b. The substrate consisted of cobble, gravel, silt, and woody debris (see **Figure 5** and **Photographs 13 – 18** in **Appendix B**). This stream has a relatively wide riparian corridor. Vegetation within the riparian corridor is described in **Section 3.2** below.

Two drainage features were observed within the West 5th Street right-of-way that convey stormwater, which include an approximately 272-foot roadside ditch in the northwestern corner of the project area and an approximately 182-foot a concrete stormwater conveyance in the northeastern portion (see **Figure 5** and **Photographs 19-21** in **Appendix B**).

3.2 Upland Areas within Project Area

The vast majority of the site consisted of grassland habitat with the exception of the wooded area along the eastern and southern property boundaries near the unnamed tributary to Mill Creek. Wooded areas within the majority of the property had limited species diversity; they were dominated by white ash (*Fraxinus americanus*), eastern redbud (*Cercis canadensis*), and invasive species throughout the property, such as amur honeysuckle, multiflora rose, and autumn olive. However, the riparian corridor in the northeastern portion of the site had greater species diversity and consisted of various types of oaks (*Quercus* spp.). Upland areas within the project area are shown in **Photographs 19-35** in **Appendix B**.

4.0 CONCLUSIONS

The USACE regulates the discharge of dredged or fill material into “waters of the US”, including wetlands, under Section 404 of the Clean Water Act (CWA). Even an inadvertent encroachment into waters of the US resulting in a displacement or movement of soil or fill material has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. Waters of the US are defined under 33 CFR 328.3(a) and referred to as jurisdictional waters. Jurisdictional waters may include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, wetlands, and other waters, that if degraded or destroyed could affect interstate commerce. Section 401 of the CWA gives the State of Ohio the authority to regulate, through the state water quality certification program, proposed federally-permitted activities that may result in a discharge to water bodies, including wetlands.

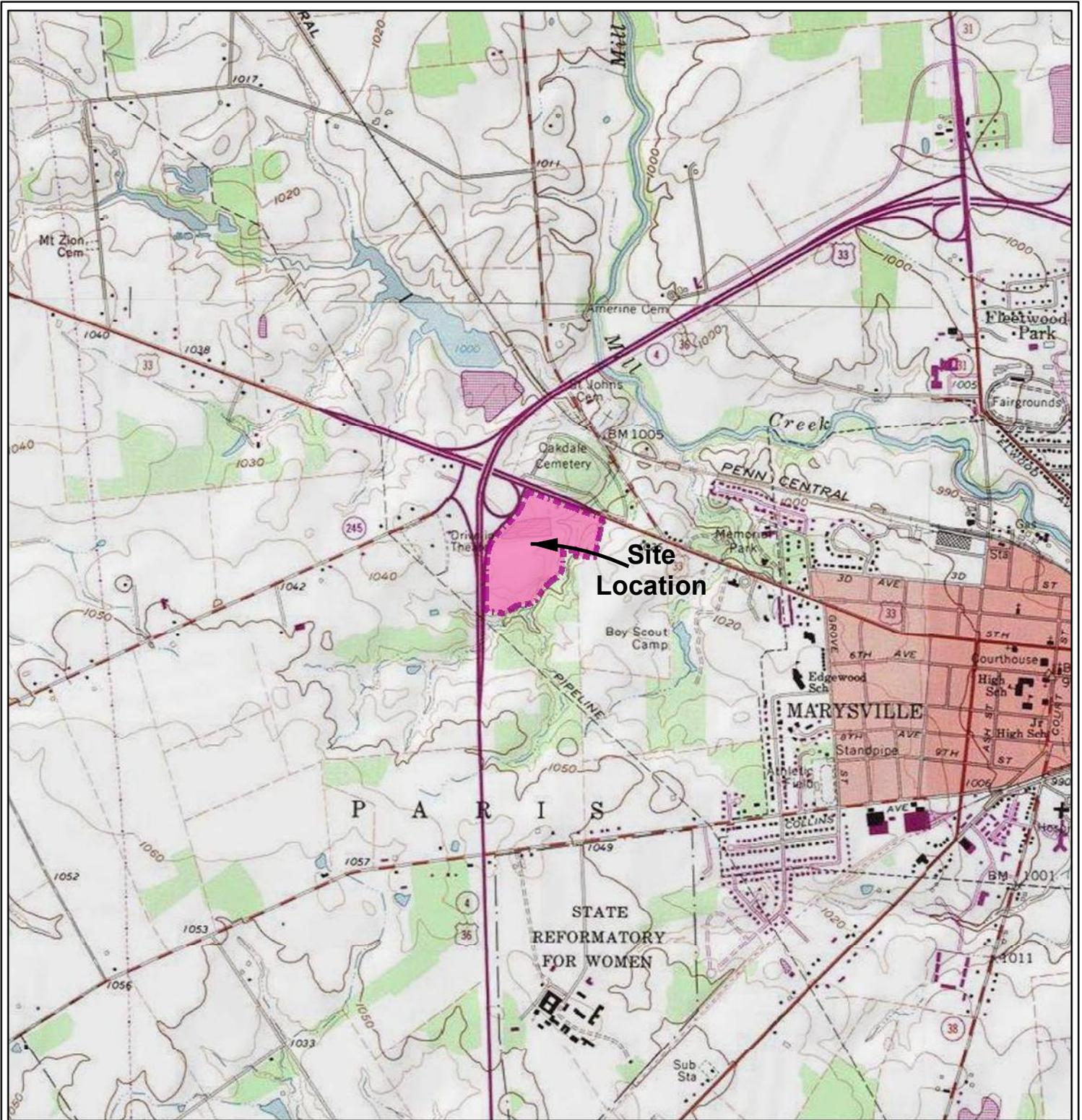
Wetland and drainage boundaries identified in this study are subject to verification and jurisdictional determination (JD) by the USACE Huntington District. An official JD request was submitted to the USACE Huntington District to request their determination on the jurisdictional status of the 4.1-acre pond and Stream Segment 1 on 2 May 2014. The USACE notified AMEC by phone that they had conducted a site visit on 22 May 2014. At this time, USACE indicated Stream Segments 1-3 within the project area and the pond would be considered jurisdictional (see **Table 1** and **Figure 5**), while the stormwater conveyance channels identified within the West 5th Street right-of-way would not be regulated under Section 404 of the CWA.

According to the USACE Huntington District, the 4-1-acre pond would be deemed jurisdictional because it is an impoundment of a natural stream channel that was historically on-site. Thus, because Stream Segment 1 is hydrologically connected to this pond, it is considered jurisdictional. Stream Segments 2, 3a, and 3b are all regulated due to their hydrological connection to Mill Creek. Therefore, regulated waterways within the project area include 4.1 acres of open water and approximately 1,398 feet of stream within the project area. Prior to initiating project activities with the potential to impact (e.g., dredging or filling) these regulated water bodies, a CWA Section 404 permit and Section 401 Water Quality Certification (WQC) would be required by the USACE and OEPA, respectively.

5.0 REFERENCES

- Cowardin L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31 US Fish and Wildlife Service. Washington, DC.
- Mack, John J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetlands/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.
- Mack, John. J. 2000. ORAM v. 5.0 Quantitative Score Calibration. Last Revised August 15, 2000. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.
- Munsell, Albert H. 2000. *Munsell® Soil Color Charts Revised Washable Edition*. GretagMacbeth. New Windsor, NY.
- Natural Resources Conservation Service (NRCS). 2013. Web Soil Survey. Accessed 1 May 2013 via <http://websoilsurvey.nrcs.usda.gov/>. United States Department of Agriculture.
- NRCS. 2012. National Hydric Soils List by State (last updated: April 2012). Accessed 1 May 2013 via <http://soils.usda.gov/use/hydric/>. United States Department of Agriculture.
- U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Manual: Midwest Region (Version 2.0). ERDC/EL TR-12-9. Vicksburg, MS: US Army Engineer Research and Development Center.
- USACE. 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y987-1, US Army Engineer Waterways Experiment Station, Vicksburg, MS.
- U.S. Environmental Protection Agency (USEPA). 2013. Surf your Watershed. Accessed on 1 May 2013 via <http://cfpub.epa.gov/surf/locate/index.cfm>
- U.S. Fish and Wildlife Service (USFWS). 2012. National Wetlands Inventory Mapper. Accessed on 1 May 2013 via <http://www.fws.gov/wetlands/Wetlands-Mapper.html>

FIGURES



Legend

 Site Location

**Figure 1.
Site Location Map**

**The Kroger Co.
N-549 Fuel Center
Marysville, Union County, OH**

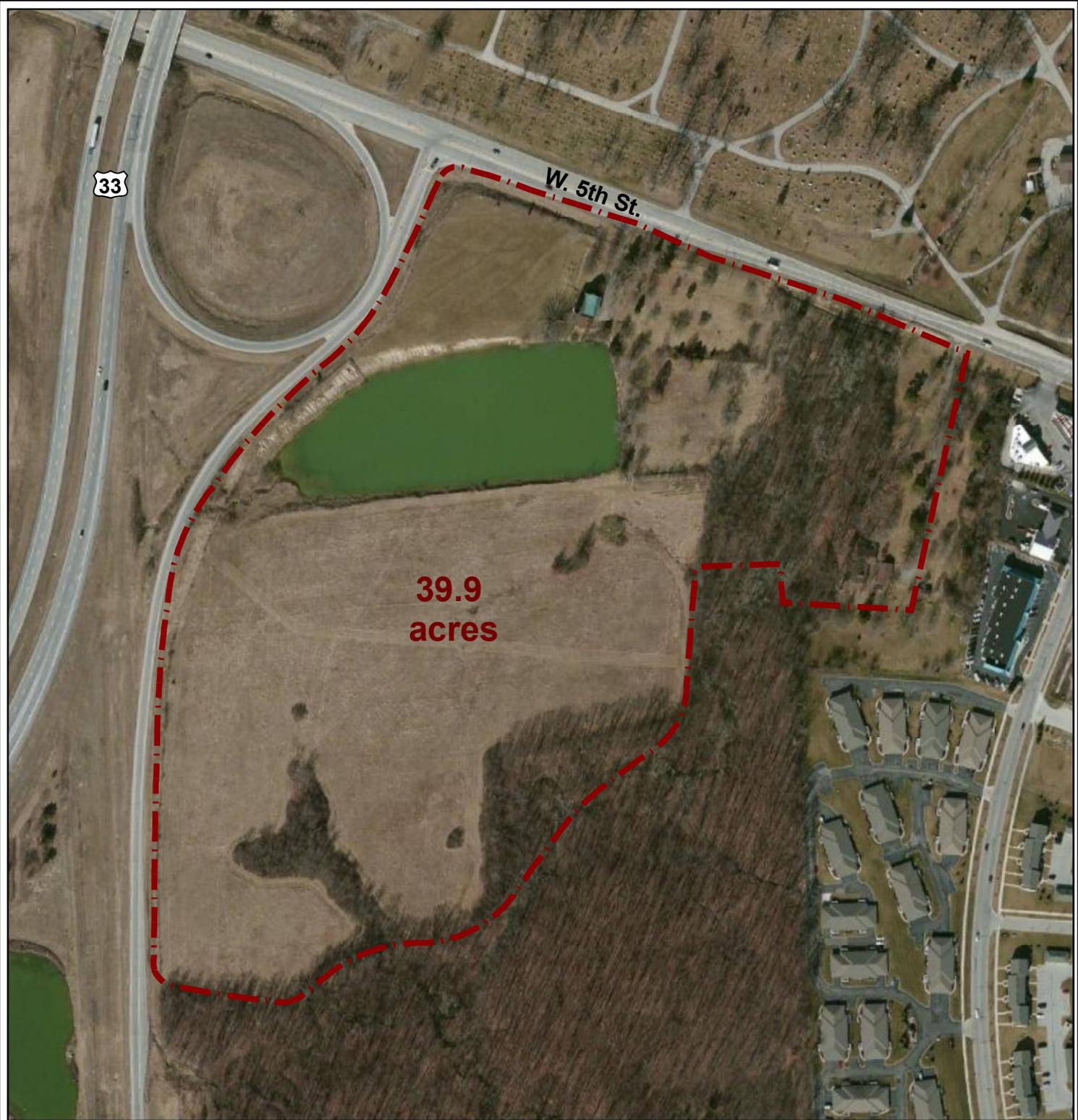


Job No. 7361141044
 Drawn By: JW
 Reviewed By: NC
 Date: 5/22/2014



0 1,000 2,000
 Feet

The map shown here has been created with all due and reasonable care and is strictly for use with AMEC Project Number 7361141044. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind. AMEC assumes no liability, direct or indirect, whatsoever for any such third party or unintended use.



**39.9
acres**

W. 5th St.

33

Legend

 Delineation Boundary

**Figure 2.
Project Area Map**

**The Kroger Co.
N-549 Fuel Center
Marysville, Union County, OH**



Job No. 7361141044
 Drawn By: JW
 Reviewed By: NC
 Date: 5/22/2014



0 200 400
Feet

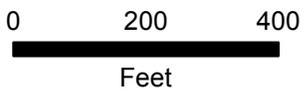
The map shown here has been created with all due and reasonable care and is strictly for use with AMEC Project Number 7361141044. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind. AMEC assumes no liability, direct or indirect, whatsoever for any such third party or unintended use.





Legend

- Delineation Boundary
- MrB - Morley silt loam, 2-6 % slope
- NpB - Nappanee silt loam, 2-6 % slope
- ScB - St. Clair silt loam, 2-6 % slope
- ScC - St. Clair silt loam, 6-12 % slope
- ScC2 - St. Clair silt loam, 6-12 % slope, eroded
- W - Water



**Figure 3.
Soils Map**

**The Kroger Co.
N-549 Fuel Center
Marysville, Union County, OH**



Job No. 7361141044
 Drawn By: JW
 Reviewed By: NC
 Date: 5/22/2014



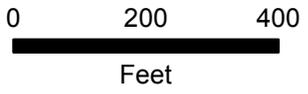
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Legend

-  Stream/River (USGS)
-  Open Water (NWI)
-  Delineation Boundary



**Figure 4.
NWI and Streams Map**

**The Kroger Co.
N-549 Fuel Center
Marysville, Union County, OH**



Job No. 7361141044
 Drawn By: JW
 Reviewed By: NC
 Date: 5/22/2014



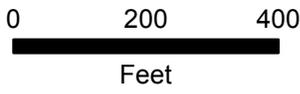
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Legend

- Culvert
- Wetland Determination Point
- Potential Stream Impact
- Roadside Ditch
- Concrete Conveyance
- Stream
- Pond
- Delineation Boundary



**Figure 5.
Wetlands and Other Surface Waters**

**The Kroger Co.
N-549 Fuel Center
Marysville, Union County, OH**



Job No. 7361141044
 Drawn By: JW
 Reviewed By: NC
 Date: 5/22/2014



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APPENDIX A
Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Kroger - 1475 W Fifth Street City/County: Marysville/Union Sampling Date: May 2, 2013
 Applicant/Owner: Kroger State: OH Sampling Point: SP1
 Investigator(s): Nancy Cho and Jen Warf Section, Township, Range: Paris Township, Parcel 2900190800000
 Landform (hillslope, terrace, etc.): Ground moraine/end moraine/lake plain Local relief (concave, convex, none): none
 Slope (%): 6% Lat: 40° 14' 24.26" N Long: -83° 23' 44.965" W Datum: NAD 1983
 Soil Map Unit Name: St. Clair silt loam, 6-12% slopes, moderately eroded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species <u>25</u> x 4 = <u>100</u> UPL species _____ x 5 = _____ Column Totals: <u>25</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>4</u>
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Lonicera maackii</u>	<u>75</u>	<u>Y</u>	<u>N/A</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Magnolia tripetala</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) <p align="center">Several dead trees (possibly walnut and/or ash species).</p>				

APPENDIX B
Site Photographs



Photo 1
View of SP1 within the southern portion of the narrow wooded area extending northeast near the bottom of the property.
May 2, 2013



Photo 2
Looking north from the southeast corner of the pond.
May 2, 2013



Photo 3
View of the pond looking
north.
May 2, 2013



Photo 4
View of the pond looking
west.
May 2, 2013



Photo 5

View facing northeast along the western bank of the pond. The small drainage (Stream Segment 1) west of the pond is seen in the foreground where it converges with the pond. May 2, 2013



Photo 6

View of the drainage channel (Stream Segment 1) located west of the pond facing west. May 2, 2013



Photo 7
View of culvert looking
north along the east bank
of the pond.
May 2, 2013



Photo 8
View of culvert outlet
approximately 100 feet
east of pond. Drainage
channel east of the pond
initiates here (Stream
Segment 2).
May 2, 2013



Photo 9
View of drainage channel
east of pond looking west
(Stream Segment 2).
May 2, 2013



Photo 10
View of drainage
channel east of pond
taken near the center of
the drainage looking west
(Stream Segment 2).
May 2, 2013



Photo 11
View of culvert near the eastern property boundary looking west (Stream Segment 2) .
May 2, 2013



Photo 12
View of drainage channel looking east near the eastern property boundary (Stream Segment 2) and its confluence with the unnamed tributary to Mill Creek (Stream Segment 3b).
May 2, 2013



Photo 13
View of unnamed
tributary to Mill Creek
(Stream Segment 3b)
looking downstream
(north) at the culvert
under West 5th Street.
May 7, 2014



Photo 14
View of unnamed
tributary to Mill Creek
(Stream Segment 3b)
looking upstream (south)
May 7, 2014



Photo 15
View of unnamed
tributary to Mill Creek
(Stream Segment 3b)
looking upstream (south)
approximately 300 feet
south of West 5th Street
May 7, 2014



Photo 16
View of unnamed
tributary to Mill Creek
from the left bank (west).
Picture was taken
outside the property
within the central portion
of this stream.
May 2, 2013



Photo 17
View of unnamed
tributary to Mill Creek
from the left bank (west).
May 2, 2013



Photo 18
View of unnamed
tributary to Mill Creek
from the left bank (west).
May 2, 2013



Photo 19

View of concrete stormwater conveyance within West 5th Street right-of-way that occurs in the northeastern portion of the project area.

May 7, 2014



Photo 20

View of drainage ditch outside of property within West 5th Street right-of-way. The drainage ditch begins near the driveway accessing the project area and extends westward. This drainage area does not extend east. Drainage flows underground east of the driveway until it eventually empties into the unnamed tributary to Mill Creek just south of the roadway.

May 2, 2013



Photo 21
View of immediately south of West 5th Street from the driveway entering the project site. Note that the drainage ditch in prior picture is no longer visible.
May 2, 2013



Photo 22
View of gravel driveway at the entrance of the property on West 5th Street looking north.
May 2, 2013



Photo 23
View of barn within the
project area. Picture was
taken facing south near
West 5th Street
May 2, 2013

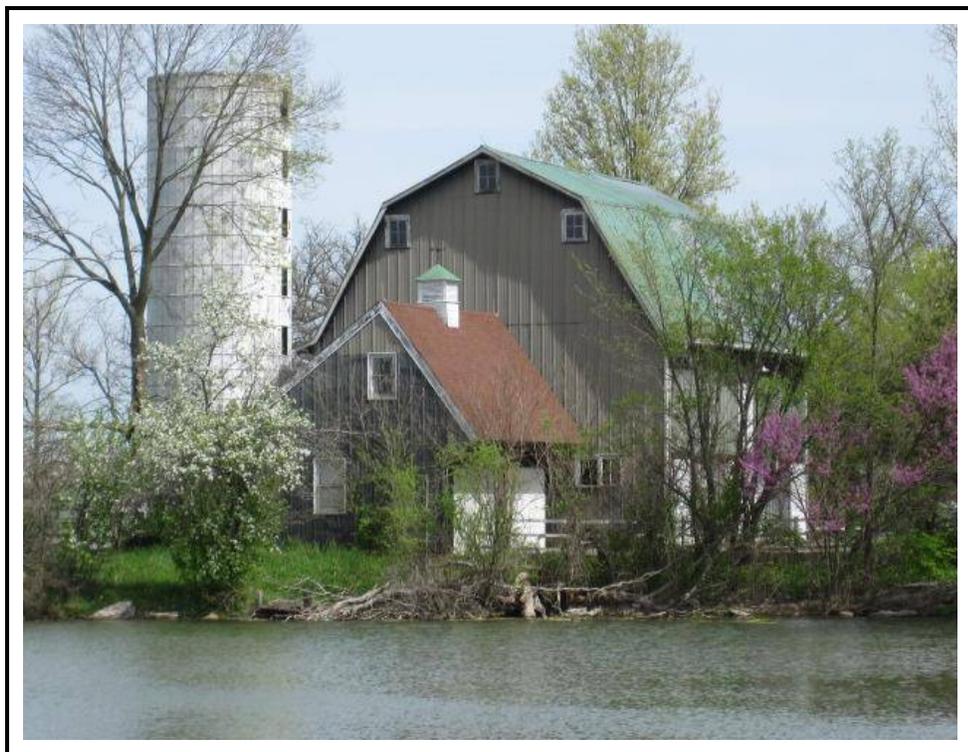


Photo 24
View of barn on the
property from the
southeast corner of the
pond facing north.
May 2, 2013



Photo 25
View of property looking south.
May 2, 2013



Photo 26
View of property looking west.
May 2, 2013



Photo 27
View of property looking east.
May 2, 2013



Photo 28
View of narrow wooded area extending northwest near the southern portion of the property. Picture was taken on the southern side of this upland area.
May 2, 2013



Photo 29
View of wooded riparian corridor of unnamed tributary to Mill Creek. The picture was taken along the eastern property boundary.
May 2, 2013



Photo 30
View of wooded riparian corridor of unnamed tributary to Mill Creek. The picture was taken along the eastern property boundary.
May 2, 2013



Photo 31

View along the east-central portion of the property just outside the wooded area. Picture was taken facing north.
May 2, 2013



Photo 32

View of property looking north. The cemetery immediately north of West 5th Street can be seen in the background.
May 2, 2013



Photo 33

View along the eastern boundary of the project area looking north at West 5th Street.

May 7, 2014



Photo 34

View along the eastern boundary of the project area looking west at the riparian corridor of the unnamed tributary to Mill Creek.

May 7, 2014



Photo 35
View along the eastern
boundary of the project
area looking south.
May 7, 2014