# FINAL ECOLOGICAL ASSESSMENT REPORT

## MICHIGAN DEPARTMENT OF TRANSPORTATION M-153 (Ford Rd) at I-275 Study Area JN 115177 CS 82292

Wayne County, Michigan

(Cardno JFNew Project No. 1201079)

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### FINAL ECOLOGICAL ASSESSMENT REPORT M-153 (FORD ROAD) AT I-275 STUDY AREA WAYNE COUNTY, MICHIGAN

#### 1.0 INTRODUCTION

Recent residential and commercial growth in the western portion of Wayne County has resulted in an increase in traffic volume on the I-275 interstate and on key commercial and residential corridors, straining the area's transportation infrastructure. The I-275/Ford Road (M-153) interchange area has been identified as a candidate area for potential changes to address traffic flow and safety concerns along Ford Road including the network of local roads within the study area.

Cardno JFNew performed an ecological assessment of the corridor surrounding the I-275/Ford Road interchange and associated roadways, including an approximately 2.5 mile section of M-153 (Ford Road), which occur within the Michigan Department of Transportation (MDOT) designated study area, located in Canton Township, Wayne County, Michigan (**Figure 1**). The ecological assessments conducted included regulatory wetland and stream delineations, vegetative community assessments, and stream biological and habitat assessments. MDOT biologists also conducted a threatened and endangered species assessment of the study area. This report identifies the methods that were used to conduct the assessments within the study area as well as the results of the investigations.

#### 2.0 METHODOLOGY

From July 2 to August 1, 2012, Cardno JFNew conducted an ecological assessment of the study area (**Figure 1**). The study area was walked with specific intent of conducting ecological assessments that included regulatory wetland delineations, vegetative community assessments, and Procedure 51 stream assessments for the entire study area. A formal threatened and endangered species survey was not conducted by Cardno JFNew, but MDOT biologists conducted a separate evaluation and survey for threatened or endangered species on May 30 and September 6, 2012, and April 22 and May 9, 2013.

#### 2.1 Regulatory Definitions

#### **2.1.1** Streams

The MDEQ regulates various activities that may impact an inland lake or stream under Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act (NREPA), P.A. 451 of 1994, as amended. Activities requiring a permit from the MDEQ pursuant to Part 301 of NREPA include:

- (a) Dredge or fill bottomland.
- (b) Construct, enlarge, extend, remove, or place a structure on bottomland.
- (c) Construct, reconfigure, or expand a marina.
- (d) Create, enlarge, or diminish an inland lake or stream.



- (e) Structurally interfere with the natural flow of an inland lake or stream.
- (f) Construct, dredge, commence, extend, or enlarge an artificial canal, channel, ditch, lagoon, pond, lake, or similar waterway where the purpose is ultimate connection with an existing inland lake or stream, or where any part of the artificial waterway is located within 500 feet of the ordinary high-water mark of an existing inland lake or stream.
- (g) Connect any natural or artificially constructed waterway, canal, channel, ditch, lagoon, pond, lake, or similar water with an existing inland lake or stream for navigation or any other purpose.
- (h) Remove submerged logs from rivers or streams for the purpose of submerged log recovery.

Part 301 of NREPA defines a stream as a river, stream, or creek which may or may not be serving as a drain as defined by the drain code of 1956, 1956 PA 40, MCL 280.1 to 280.630; or any other body of water that has definite banks, a bed, and visible evidence of a continued flow or continued occurrence of water, including the St. Marys, St. Clair, and Detroit Rivers.

#### 2.1.2 Wetlands

The MDEQ regulates various activities that may impact wetlands under Part 303, Wetland Protection, of NREPA. Activities requiring a permit from the MDEQ pursuant to Part 303 of NREPA include:

- (a) Deposit or permit the placing of fill material in a wetland.
- (b) Dredge, remove, or permit the removal of soil or minerals from a wetland.
- (c) Construct, operate, or maintain any use or development in a wetland.
- (d) Drain surface water from a wetland.

Part 303 of NREPA defines a wetland as "land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh, and which is any of the following:

- (a) Contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream.
- (b) Not contiguous to the Great Lakes, an inland lake or pond, or a river or stream; and more than 5 acres in size.
- (c) Not contiguous to the Great Lakes, an inland lake or pond, or a river or stream; and 5 acres or less in size if the department determines that protection of the area is essential to the preservation of the natural resources of the state from pollution, impairment, or destruction and the department has so notified the owner."

As adopted by the MDEQ and described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version* 



2.0) (USACE 2012), wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

#### 2.1.2.1 <u>Hydrophytic Vegetation</u>

On June 1, 2012, the National Wetland Plant List (NWPL), formerly called the National List of Plant Species that Occur in Wetlands (Reed 1988), went into effect after being released by the USACE as part of an interagency effort with the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) (Lichvar and Kartesz 2009). The NWPL, along with the information implied by its wetland plant species status ratings, provides general botanical information about wetland plants and is used extensively in wetland delineation, restoration, and mitigation efforts. The NWPL consists of a comprehensive list of wetland plant species that occur within the United States along with their respective wetland indicator statuses by region. An indicator status reflects the likelihood that a particular plant species occurs in a wetland or upland (Lichvar 2012). Definitions of the five indicator categories are presented below.

**OBL** (Obligate Wetland Plants): almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface. These plants are of four types: submerged, floating, floating-leaved, and emergent.

**FACW** (Facultative Wetland Plants): usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.

**FAC** (Facultative Plants): occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions.

**FACU** (Facultative Upland Plants): usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.

<u>UPL (Upland Plants):</u> almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.



According to the USACE's Northcentral and Northeast Regional Supplement, plants that are rated as FAC, FACW, or OBL are classified as wetland plant species. The percentage of dominant wetland species in each of the four vegetation strata (tree, shrub/sapling, herbaceous, and woody vine) in the sample area determines the hydrophytic (wetland) status of the plant community. Dominant species are chosen independently from each stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

For the purposes of determining dominant plant species, the four vegetation strata are defined. Trees consist of woody species 3 inches or greater in diameter at breast height (DBH). Shrubs and saplings are woody species that are over 1 meter in height and less than 3 inches DBH. Herbaceous species consist of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 1 meter tall. Woody vines consist of vine species greater than 1 meter in height.

#### 2.1.2.2 Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil profile. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperature measured at 12 inches (30cm) depth is 41 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, which are used to differentiate hydric from non-hydric soils.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The hue notation of a color indicates its relation to red, yellow, green, blue, and purple; the value notation indicates its lightness, and the chroma notation indicates its strength or departure from a neutral of the same lightness.

The symbol for hue consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for value consists of numbers from 0 representing absolute black, to 10 representing absolute white. The notation for chroma consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. Soil color, along with texture and depth, provides the basis for assigning a hydric soil indicator.

The implementation of USACE regional supplements in this area of the country significantly updated the criteria for hydric soils based on guidance and indicators defined by the National Technical Committee for Hydric Soils. Updated indicators are not meant to replace or relieve the requirements contained in the USACE definition of a hydric soil, but they have been integrated to capture all of the characteristic morphologies that result from repeated periods of saturation and inundation.



#### 2.1.2.3 Wetland Hydrology

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology provide stand-alone evidence of a current or recent hydrologic event. Secondary indicators provide evidence of recent inundation or saturation when supported by one or more other primary or secondary wetland hydrology indicators. However, a single secondary indicator should not be used alone to conclude that wetland hydrology is present. One primary indicator or two or more secondary indicators are required to establish a positive indication of hydrology.

#### 2.1.2.4 Wetland Definition Summary

In general, an area must meet all three criteria (i.e., hydrophytic vegetation, hydric soils and wetland hydrology) to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in atypical, recently disturbed situations, areas may be considered wetland if only two criteria are met. In other situations, areas that meet the wetland definition may not fall under MDEQ jurisdiction because they are not within 500 feet of a river, stream, lake, or pond; do not have a surface water connection to a river, stream, lake, or pond; or are not contiguous and not greater than five acres in size.

#### 2.1.3 Threatened and Endangered Species

Threatened and Endangered species are legally protected by the State of Michigan's Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, Part 365; and the Federal Endangered Species Act of 1973, as amended. An endangered species (E) under the Acts is defined as being in danger of extinction throughout all or a significant portion of its range. A threatened species (T) under the Acts is likely to become an endangered species within the near future throughout all or a significant portion of its range. Special concern species (SC) are not afforded legal protection under the Acts, but are of concern because of declining or relict populations within Michigan or are species for which more information is needed.

#### 2.2 Background Information and Reference Map Review

Prior to conducting the field work, background information was reviewed to establish the probability and approximate location of streams and potential wetlands within the study area. Several sources of information were consulted to identify potential streams, wetlands, and hydric soil units within the study area prior to the investigation. These include the United States Geological Survey (USGS) topographic maps, National Hydrography Dataset (NHD), USFWS National Wetlands Inventory (NWI), and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys. These sources identify potential drainageways, streams, waterbodies, wetlands, and hydric soil units within the study area.



#### 2.2.1 USGS Topographic and National Hydrography Dataset Map

USGS topographic maps provide a two-dimensional view of the earth's surface utilizing contour lines to show elevation changes. Information contained in these maps varies, but may include waterways (rivers and streams), ponds, lakes, roads, and other regionally significant items. The accuracy of these maps is variable. They can be greatly affected by the date they were created and the amount of development within an area.

The National Hydrography Dataset (NHD) is the surface water component of *The National Map*, as assembled by the USGS. The NHD is a comprehensive set of digital spatial data representing the surface water of the United States using common features such as lakes, ponds, streams, rivers, canals, and oceans. These data are designed for use in general mapping and in the analysis of surface-water systems using geographic information systems (GIS).

The two aforementioned maps were combined to indicate the potential presence of watercourses and waterbodies which may potentially occur within the study area (**Figure 2**). Several primary streams, watercourses, and drainage systems are mapped within the study area (**Table 1**). It should be noted that other smaller, secondary, or unnamed watercourses are also mapped within the study area, but may not be indicated in the summary table.

#### 2.2.2 National Wetland Inventory (NWI) Map

The NWI maps were prepared from high altitude photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified on wetland inventory maps. Additionally, the criteria used to identify these wetlands were different from those currently used by the MDEQ. Wetlands on the NWI maps are classified in accordance with the Cowardin wetland classification system (U.S. Department of the Interior 1979).

The NWI maps identified numerous wetland types within the study area (**Figure 3**). All NWI wetland types which are mapped within the study area are summarized in **Table 2**. Information on wetland type and a description of each wetland type are presented.

#### 2.2.3 Soil Survey

In contrast to the NWI maps, the county soil surveys were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography and many mapping units contain inclusions of other soil types for up to 15 percent of the area of the unit. The USACE and MDEQ do not accept the use of either of these maps to make wetland determinations; however, they are used as reference to understand possible site conditions.



The USDA NRCS Soil Survey identified numerous soil types within the survey area (**Figure 4**). All soils which cross the study area are listed in **Table 3**. Information on the map unit symbol, soil unit name, and hydric classification (hydric, partially hydric (contains hydric inclusions), or not hydric) is presented.

#### **2.2.4** Michigan Natural Features Inventory (MNFI) Natural Heritage Database (NHD)

A search of the Michigan Natural Features Inventory Natural Heritage Database indicates four species of concern within one mile of the project study area including:

#### 2.2.4.1 Goldenseal (Hydrastis canadensis) - State Threatened

This species prefers rich and shady mesic woodlands under maple canopies. It tends to be associated with wetter conditions near small streams and creeks. It prefers to grown in sandy loam soils with moist forest conditions where little undergrowth is present for competition. This low growing plant is easily identified in the late spring by its single stem that bares one or two leaves, palmately lobed, shiny and wrinkled with a solitary flower ½" wide.

#### 2.2.4.2 Shumard's Oak (Quercus shumardii) - State Special Concern

This oak can live under a variety of conditions but prefers southern swamp forests with mesic to wet soils dominated by clay. While this species is listed as Special Concern in Michigan, MDOT does everything possible to protect these species and prevent them from becoming further listed in the future. This species is recognizable by its leaf shape which is similar to red oak (*Quercus rubra*) but has brown gray buds before leaf out. Surveys are best completed after trees have fully developed when acorns are present.

#### 2.2.4.3 American Chestnut (*Castanea dentata*) - State Endangered

This species is known to grow very large and consists of four sub-species. This species prefers full sun and a wide canopy at maturity. It grows best in sandy well drained soils that hold adequate moisture and are acidic in nature. The species is becoming very rare and is recognized by its vine like bark, leaves with sharply pointed widely spaced teeth and chestnut fruits in the late fall. Surveys are best completed in the summer after the leaves have fully developed.

#### 2.2.4.4 <u>Cup Plant (Silphium perfoliatum) - State Threatened</u>

This species is known to inhabit numerous prairie types and woodland edges. This species prefers dry sandy conditions with at least half a day of open sunlight. This species is often found in open fields, woodland fringes and maintained ROW adjacent to highways. This plant is easily recognizable by the opposite cupping leaves and yellow flowers in the fall. Surveys for this species should be completed in late August/September when the plant is flowering.

As the project progresses through the planning phase, additional reviews of the Michigan Natural Features Inventory database will be conducted in order to verify that no new T/E/SC species have been found. If any state or federally listed T/E/SC plant or



animal species are located that will be affected by construction activities, then consultation with the MDNR and the USFWS will be initiated immediately. This may require an Endangered Species Permit from the MDNR or Section 7 Consultation with the USFWS.

No listed animal species records were found within, or near the project limits. Future field surveys will be undertaken based upon project schedule and once the area of direct impact is identified.

#### 2.3 Site Investigation and Field Reconnaissance

#### **2.3.1** Wetland and Stream Delineation

Cardno JFNew conducted wetland investigations of the study area from July 2 to July 26, 2012. The delineation of wetlands within the designated study area was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* and corresponding *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE 2012) as required by current MDEQ/USACE policy.

Streams were identified based on criteria outlined in Part 301 of NREPA. A watercourse is regulated as a stream if it is has a bed, banks, and continued occurrence of water or evidence of flow. For the purposes of this study, streams were included within delineated wetland boundaries.

All wetlands were identified within the study area and nine sets of paired data points were established in representative wetlands that were chosen based on wetland type, location, and habitat quality. According to accepted methodology, paired data points were located on either side of the delineated boundaries to document soil characteristics, evidence of hydrology, and dominant vegetation (**Appendix A**). Complete descriptions of typical soil series can be found in the USDA NRCS Soil Surveys for the subject counties (**Table 3**); however, no attempt was made to confirm any soil series designations during this site assessment.

Wetland boundaries were located using Trimble Geo XH GPS units, capable of submeter accuracy. GPS data was downloaded and integrated into the Wetland/Stream Delineation and Vegetative Community Maps (**Figure 5**) using ArcView GIS software. Pursuant to MDOT's request, wetland boundaries were not marked with flags in the field.

Representative photographs of the delineated features are provided in **Appendix B**. These photographs represent the visual documentation of geographic feature conditions at the time of inspection. Photographs of representative wetland data point locations are included in **Appendix C**. The photographs are intended to provide representative visual depictions of all wetlands and representative data points found within the study area. Each wetland complex was labeled with WC (i.e., wetland complex) followed by a three-digit sequential wetland number (e.g., 001, 002, etc.). Data points were labeled with the aforementioned wetland identifier followed by DP1 (i.e., data point 1; wetland) or DP2 (i.e., data point 2; upland).



Additionally, a Michigan Rapid Assessment Method for Wetlands (MiRAM) was completed for representative wetland complexes throughout the study area. Wetland complexes were chosen to encompass a representative range of wetland type, location, and quality present within the study area. The goal of the MiRAM is to assess and compare the functional value of wetlands by assigning them a value based on objective, measurable parameters (Michigan Department of Natural Resources 2012). MiRAM forms for each of the representative wetlands are provided in **Appendix D**.

#### 2.3.2 Stream Assessment

Cardno JFNew conducted stream assessments at six locations within the study area on July 31 and August 1, 2012 in order to provide an understanding of existing stream habitat and biological communities (**Figure 6**). The Michigan Surface Water Assessment Section Procedure 51 Qualitative Biological and Habitat Survey Protocol (Procedure 51) methodology (Michigan Department of Environmental Quality 2008) was used to characterize each stream site. Three streams (Tonquish Creek, Willow Creek, and Fellow's Creek) were selected within areas of potential impact. On each of the three streams, two representative stream reaches were sampled in order to characterize habitat, benthic macroinvertebrate, and fish communities. The streams and sample locations were selected to be representative of watercourses within the study area based on both desktop and field reviews of perennial streams within the study area. Representative photographs of the assessed streams are provided in **Appendix E**.

Macroinvertebrate and fish communities were sampled and analyzed using protocols detailed in the MDEQ's Procedure 51 (Michigan Department of Environmental Quality 2008). For both macroinvertebrates and fish, each stream site was assigned a rating of poor, acceptable, or excellent based on a multi-factor system which generates a score ranging from -9 to 9. The metrics used to generate the macroinvertebrate and fish ratings appear in the field forms provided in **Appendix F**. The fish community at Site 6 (Tonquish Creek) was not sampled due to technical equipment failure.

Habitat conditions at each of the six assessment sites was evaluated based on the *Habitat Assessment Field Data Sheet*, provided in the MDEQ Procedure 51 protocols (Michigan Department of Environmental Quality 2008). The assessment contains two versions (riffle/run and pool/glide); the version used for each stream site was based on local stream morphology and professional judgment by field crews. Stream habitats were rated as poor, marginal, good, or excellent, based on a multi-factor system which generates scores on scales from 0 to 180 (pool/glide version) or 0 to 200 (riffle/run version). The metrics used to evaluate habitat condition appear on the stream assessment data sheets provided in **Appendix F**.

#### 2.3.3 Vegetative Community Assessment and Mapping

Cardno JFNew identified and mapped the general wetland and upland plant communities located within the study area (**Figure 5**). Mapping was completed using a combination of field surveyed boundaries and recent aerial photographs to determine the extent of each plant community type. Three wetland and three upland community types



were identified during the study based on the type of vegetation structure present. Wetland community types included were emergent (dominated by herbaceous vegetation), scrub-shrub (dominated by woody vegetation less than 20 feet in height), and forested (dominated by woody vegetation greater than 20 feet in height). Upland communities included old field (dominated by herbaceous vegetation), shrubland (dominated by woody vegetation less than 20 feet in height), and woodland (dominated by woody vegetation greater than 20 feet in height). Areas primarily used and maintained for commercial or residential purposes were considered developed.

A floristic quality assessment (FQA) was conducted in each wetland complex and in representative upland communities, according to the methodology described in Herman et al. (2001). A floristic quality index (FQI), a measure of habitat quality, was calculated for each wetland complex and representative upland community using a coefficient of conservatism (C) and the total number of species found on the site (n), as follows:

$$FQI = \bar{C}\sqrt{n}$$
 where  $\bar{C} = \frac{\sum C}{n}$ 

The *C* value is a number ranging from 0 to 10 that indicates the fidelity of a plant species to a particular natural community type. Plants that occur in almost any kind of habitat have a *C* of 0, and plants that only occur in rare communities have a *C* of 10. The *C* values for Michigan plant species were assigned by the Michigan Department of Natural Resources with assistance from local plant experts (Herman et al. 2001). The FQI, therefore, is a measure of the quality of the habitat with respect to its vegetative composition relative to undisturbed habitats of the same type.

According to Herman et al. (2001), natural communities with an FQI value less than 20 have "minimal significance from a natural quality perspective," and natural communities with an FQI greater than 35 are "floristically important from a statewide perspective." Thus, a rating of "low quality" was given to communities with an FQI less than 20, a rating of "moderate quality" was given to communities with an FQI between 20 and 35, and a rating of "high quality" was given to communities with an FQI of 35 or greater.

#### **2.3.4** Threatened and Endangered Species Survey

Based on reviews of aerial photographs, national wetland inventory maps, soil survey conditions, and vegetative cover types, it was determined that suitable habitat for all four species identified in the MNFI records within one mile of the study area could persist within the proposed study area.

Field surveys for listed plant species were conducted on May 30, 2012 from 0900-1700 and September 6, 2012 from 0900-1730. All surveys were conducted as meander surveys for plant species. Numerous portions of the ROW along I-275 have been mowed and/or maintained to the ROW fence. Surveys in these areas were conducted at a faster pace than areas that remained less disturbed. The project study area as defined earlier in the document (**Figure 1**) indicates those areas that were surveyed with the exception of the eastern boulevard that is not located within current MDOT ROW. This area is under private ownership and therefore was not surveyed as part of this assessment.



#### 3.0 RESULTS

#### 3.1 Wetland and Stream Delineation

Cardno JFNew identified 112 wetland complexes within or immediately adjacent to the study area. Stream segments occurred within 19 of the wetland complexes. For the purposes of this study, a wetland complex is defined as a continuous wetland (i.e., not divided by a road, bridge, upland, or other non-wetland feature). Of the wetlands identified within the study area, 62 complexes were identified as emergent wetland (approximately 19.6 total acres), 19 complexes were scrub-shrub wetland (approximately 4.7 acres), and 31 complexes were forested wetlands (approximately 15.7 acres).

It should be noted that not all delineated wetlands are regulated by the MDEQ. Based on the criteria outlined in the Michigan Natural Resources and Environmental Protection Act (P.A. 451 of 1994, Part 303, Wetland Protection), a wetland is regulated if it has a direct or seasonal surface water connection to an inland lake, pond, river, or stream; is within 500 feet of one of the above-mentioned waterbodies; or has a total area greater than 5 acres and is therefore considered contiguous. A list of wetland features identified within the study area during the ecological assessment is presented along with a preliminary determination as to whether each wetland is regulated under Part 303 (**Table 4**). Final determination of the regulatory status of these wetlands resides with the MDEQ.

Preliminary data provided by MDOT indicates that there are several wetlands within and nearby the study area that are currently under MDEQ conservation easements. The wetlands within the study area that are likely under easement include those associated with wc-023, wc-067, and wc-081 (**Figure 5**).

A total of four streams were identified within wetland complexes throughout the study area. These included Tonquish Creek, Willow Creek, Fellows Creek, and a tributary to Willow Creek (**Figure 5**). All of the streams were perennial.

Based on the criteria outlined in the Michigan Natural Resources and Environmental Protection Act (P.A. 451 of 1994, Part 301, Inland Lakes and Streams), a watercourse is regulated as a stream if it is has a bed, banks, and continued occurrence of water or evidence of flow. All of the streams identified during the field investigation meet these criteria and are regulated by the MDEQ.

#### 3.2 Stream Assessment

On July 31 and August 1, 2012, Cardno JFNew assessed six stream segments on three streams (Tonquish Creek, Willow Creek, and Fellows Creek) within the study area (**Figure 6**). Stream assessments were based on habitat condition, macroinvertebrate community, and fish community according to the MDEQ's Procedure 51 stream sampling protocol. Results of the stream assessments are summarized in **Tables 5 – 9**.



#### 3.2.1 Habitat Assessment

Based on physical and geomorphic characteristics, all of the assessment sites had a habitat rating of "marginal", except for Site 5 (Willow Creek), which had a habitat rating of "poor" (**Table 5**). Most of the assessment sites were characterized by stained or slightly turbid water, poor bank stability, low sinuosity, and low pool/riffle variability.

#### 3.2.2 <u>Macroinvertebrate Community Assessment</u>

Thirty-two macroinvertebrate taxa were identified within the six stream assessment sites (**Table 6**). Overall, the most abundant taxa was Chironomidae (midges), which typically is an indicator of low water quality when found in high abundance. All of the assessment sites had a macroinvertebrate assessment rating of "poor", except for Site 2 (Willow Creek), which had a macroinvertebrate assessment rating of "acceptable" (**Table 7**).

#### **3.2.3** Fish Community Assessment

Thirteen species of fish were identified within the six stream assessment sites (**Table 8**). In general, the fish communities were dominated by species tolerant of low water quality. Based on the assessment of fish communities, Tonquish Creek (Site 1) was rated as "poor"; Willow Creek (Sites 2 and 5) was rated as "poor", and Fellows Creek (Sites 3 and 4) was rated as "acceptable" (**Table 9**).

#### 3.3 Vegetative Community Assessment

#### **3.3.1** Vegetative Community Types

A total of six upland and wetland vegetative community types were identified within the study area based on the type of vegetation structure present (**Figure 5**). Photographs of representative plant communities are provided in **Appendix B**. Based on the FQI values generated for each community (**Table 4**), most vegetative communities within the study area were determined to be of low quality utilizing the FQI categories established by Herman et al. (2001). Five main areas, which occurred in woodland or forested wetland communities, were considered to be of moderate quality; there were no high quality areas documented within the study area. Each combination of vegetative community and quality observed within the study area is described below.

Low Quality Palustrine Emergent (PEM) Wetland vegetative communities (approximately 19.6 total acres) had an FQI less than 20 and were generally located as depressions within fields and linear ditches parallel to roadways. These wetlands are dominated by invasive species such as narrow-leaf cattail (*Typha angustifolia*), giant reed (*Phragmites australis*), and purple loosestrife (*Lythrum salicaria*). Other vegetation within these wetlands includes swamp milkweed (*Asclepias incarnata*), fox sedge (*Carex vulpinoidea*), and Dudley's rush (*Juncus dudleyi*).

Low Quality Palustrine Scrub-shrub (PSS) Wetland vegetative communities (approximately 4.7 total acres) had an FQI less than 20 and were generally located along stream edges and in transitional areas between forested and emergent wetlands. These wetlands are dominated by invasive species such as common buckthorn



(*Rhamnus cathartica*) and glossy buckthorn (*R. frangula*). Other vegetation within these wetlands includes gray dogwood (*Cornus foemina*), silky dogwood (*Cornus amomum*), and narrow-leaf willow (*Salix exigua*).

Low Quality Palustrine Forested (PFO) Wetland vegetative communities (approximately 8.8 total acres) had an FQI less than 20 and were generally located within forested upland/wetland mosaics adjacent to development, and also along stream banks and floodplains. These wetlands are dominated by American elm (*Ulmus americana*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), and basswood (*Tilia americana*).

Moderate Quality Palustrine Forested (PFO) Wetland vegetative communities (approximately 6.9 total acres) had an FQI between 20 and 35 and were located within forested upland/wetland mosaics set back from roadways and development. These wetlands are dominated by mature American elm, silver maple, green ash, and basswood and have a relatively diverse understory of shrubs and herbaceous vegetation. These wetlands likely provide habitat for a variety of wildlife, including breeding amphibians.

Low Quality Old Field vegetative communities (approximately 54.7 total acres) had an FQI less than 20 and were generally located alongside developed areas or areas of recent soil and/or vegetative disturbance, or are overgrown lawns. These communities are dominated by exotic species such as common teasel (*Dipsacus sylvestris*), spotted knapweed (*Centaurea maculosa*), white sweet clover (*Melilotus alba*), smooth brome (*Bromus inermis*) and Canada thistle (*Cirsium arvense*). Other vegetation within these sites included Canada goldenrod (*Solidago canadensis*), annual fleabane (*Erigeron annuus*), horseweed (*Conyza canadensis*), fescue (*Festuca arundinacea*), and bluegrass (*Poa compressa*).

Low Quality Shrubland vegetative communities (approximately 20.6 total acres) had an FQI less than 20 and were generally located near developed areas where shrubs and small trees have been allowed to establish among old field vegetation. These communities are dominated by invasive species such as autumn olive (*Elaeagnus umbellata*), honeysuckle (*Lonicera* spp.), multiflora rose (*Rosa multiflora*), and common buckthorn. Other vegetation within these sites includes poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), gray dogwood, and prickly ash (*Zanthoxylum americanum*).

<u>Low Quality Woodland</u> vegetative communities (approximately 27.3 total acres) had an FQI less than 20 and were generally located in woodlots adjacent to development and along streams. These communities were dominated by green ash, American elm, basswood, American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), prickly ash, and Virginia creeper. The understory was typically dominated by invasive species such as autumn olive, honeysuckle, multiflora rose, and common buckthorn.

<u>Moderate Quality Woodland</u> vegetative communities (approximately 27.3 total acres) had an FQI between 20 and 35, and were generally set back from development. These



communities were dominated by American beech, sugar maple, red maple (*Acer rubrum*), red oak (*Quercus rubra*), basswood, and spicebush (*Lindera benzoin*), and have a relatively diverse understory of shrubs and herbaceous vegetation. These areas contain pockets of forested wetland, which may provide suitable breeding habitat for amphibians and a variety of other wildlife.

<u>Developed</u> areas were located in areas where there was little or no natural vegetation due to intensive human land use such as roadways, buildings, or maintained lawns. Floristic Quality Assessments were not conducted in these areas due to their high level of vegetative disturbance.

#### 3.3.2 Threatened and Endangered Species

#### 3.3.2.1 Plants

During the field surveys conducted by both Cardno JFNew and MDOT biologists, no state or federally listed endangered, threatened, or special concern plant species were located within the project study area. Furthermore, the vast majority of this study area no longer serves as suitable habitat for these species due to previous development and ongoing maintenance activities within it.

Given the level of disturbance due to human activity and population density, it is highly unlikely that listed species use the study area for breeding purposes or for foraging on a persistent basis.

#### 3.3.2.2 Animals

Site visits to document wildlife use within the project study area were undertaken during the spring of 2013. Observations were collected by use of both point counts and timed meander searches of the major cover types found within and along the study area. Land use adjacent to existing natural cover (native or adventive vegetative cover exclusive of turf or ornamental plantings) includes commercial and residential areas, and associated transportation infrastructure. All wildlife species observed during site visits as well as observations obtained from the Friends of the Rouge (FOTR) Frog and Toad Survey, eBird, and the Michigan Breeding Bird Atlas I and II (MBBA I/II) are presented in **Table 10**.

A total of seven amphibians, zero reptiles, three mammals, and 105 birds were documented from the study area, or areas within 0.5 miles of the study area (**Figure 1**). Existing data sets used to compile **Table 10** represent different time periods and two vertebrate groups; amphibians and birds. No data sets were found for reptiles and mammals at a spatial scale that would provide meaningful information for the study area. The Frog and Toad Survey spans a period of six years (2007-2012), while the dates of observations from eBird that were available represent the years and months of 2000 (May), 2001 (May), 2002 (May), 2009 (Oct), 2013 (Feb, Apr). The MBBA data represent observations collected during the breeding seasons from 1983-1988 (MBBA I) and 2001-2008 (MBBA II). MDOT field surveys conducted on April 22 and May 9, 2013 documented species listed under the MDOT column of **Table 10**.



The use of citizen science data from the FOTR Frog and Toad Survey and eBird represent the best available data for these vertebrate groups at a scale that is suitable for inclusion in an overview of the region surrounding the study area. Observations relating to use of the remaining areas of forested cover directly adjacent to the project by birds was possible by using a combination of MBBA data and eBird observations. Bird observations collected at the William P. Holliday Forest and Wildlife Preserve approximately 0.5 mile from the north end of the study area allowed for extrapolation from this forested preserve to the remaining forested cover directly adjacent to I-275 on the east and south of Ford Road.

Although no formal threatened and endangered species field surveys were conducted during the course of the wetland, stream, and vegetative community studies, three trees which may provide suitable habitat for the federally endangered Indiana bat (*Myotis sodalis*) were observed by Cardno JFNew within the moderate quality woodlands (**Figure 5**). These potentially suitable roost trees all were dead or dying with at least 10% exfoliating bark, were at least 3 inches diameter at breast height (DBH), and had sufficient solar exposure along a wooded edge or in a canopy gap.

#### 4.0 <u>DISCUSSION AND RECOMMENDATIONS</u>

Cardno JFNew performed ecological assessments of the I-275 study area in Canton Township, Wayne County, Michigan from July 2 to August 1, 2012. These ecological assessments included regulatory wetland delineations, vegetative community assessments, and Michigan Surface Water Assessment Section Procedure 51 Qualitative Biological and Habitat Survey Protocol (Procedure 51) evaluations. MDOT biologists performed additional threatened and endangered species assessments within the study area from May 30, 2012 through May 9, 2013.

#### 4.1 Wetland and Stream Delineation

A total of 112 wetland complexes, of which 19 contained stream segments, were identified within or immediately adjacent to the study area. Of the 112 wetland complexes identified during the study, 110 are likely regulated by the MDEQ under Part 303 of P.A. 452 due to their close proximity to a river, stream, lake, or pond, or because they are greater than five acres in size. The remaining 2 delineated wetlands are, in our opinion, not likely regulated by the MDEQ since they appear to be greater than 500 feet away from any defined waterbody or watercourse and are less than five acres in size (**Table 4**). Any dredging, draining, filling, or construction in any of the regulated wetlands will require a permit from the Michigan Department of Environmental Quality (MDEQ) under Part 303.

All four streams identified in the study area (Tonquish Creek, Willow Creek, Fellows Creek, and a tributary to Willow Creek; **Figure 5**) have a defined bed and bank, meet the MDEQ definition of a stream, and are therefore regulated under Part 301 of P.A. 451. Any manipulation of regulated lakes, ponds, streams, or drains will require a permit from the MDEQ under Part 301.



June 29, 2013

While this report represents our best professional judgment based on our knowledge and experience, it is important to note that the MDEQ and USACE have final discretionary authority over all jurisdictional determinations of wetlands, streams, and waterbodies within the state of Michigan.

#### 4.2 Stream Assessment

The macroinvertebrate community, fish community, and habitat conditions were assessed at six locations along three streams within the study area. In all streams, macroinvertebrate and fish communities were rated as poor or acceptable, and habitat conditions were rated as poor or marginal. These conditions are typical of streams in highly urbanized settings. Urban streams often experience high stormwater flows and high inputs of sediments, road salts, and other pollutants because of the high percentage of impervious surfaces within the watershed. These conditions can reduce the quality of instream habitat and prohibit the full development of macroinvertebrate and fish communities. Because the streams located within the study area are already of low ecological quality, it is the professional opinion of Cardno JFNew that proposed project activities may have minimal impact on the quality of stream resources within the study area. Applicable water resource regulations and permit conditions will serve to protect or potentially enhance existing stream conditions.

#### 4.3 Vegetative Community Assessment

Six distinct vegetative community types were identified within the study area, of which three were wetland and three were upland. Based on FQI values, most areas were considered to be low quality. Five main areas of moderate quality occurred in woodland and forested wetland vegetative communities; there were no high quality areas documented within the study area. Therefore, it is the professional opinion of Cardno JFNew that proposed project activities may have minimal impact on most vegetative communities within the study area. However, Cardno JFNew recommends avoiding construction activities that would impact the moderate quality woodlands because of their higher ecological quality and their potential to provide suitable habitat for Indiana bat and/or other threatened and endangered species.

#### 4.4 Threatened and Endangered Species Assessment

No state or federally listed plant or animal species were observed within the study area during the field surveys. Based on the findings of the field surveys and vegetative community assessments performed for this project, it is highly unlikely that there are state or federally listed plant or animal species within the project limits. Since there are no listed species present, no further coordination is currently required with the Michigan Department of Natural Resources (state listed species) or the U.S. Fish and Wildlife Service (federally listed species).



#### 5.0 REFERENCES

- Brewer, R., G.A. McPeek, and R.J. Adams, Jr. 1991. The Atlas of Breeding Birds of Michigan. Michigan State University Press. East Lansing, MI.
- Chartier, A.T., J.J.Baldy, and J.M.Brenneman. 2011. The Second Michigan Breeding Bird Atlas, 2002-2008. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at: www.MIBirdAtlas.org.
- Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical report Y-87-1. U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi. On-line version.
- Friends of the Rouge. 2007 2012. Rouge River Frog and Toad Survey. University of Michigan, Dearborn. <u>Accessed onlin at: http://therouge.org/index.php?id=692869</u>.
- Herman, K.D., L.A. Masters, M.R. Penskar, A.A. Reznicek, G.S. Wilhelm, W.W. Brodovich, and K.P. Gardiner. 2001. Floristic Quality Assessment with Wetland Categories and Examples of Computer Applications for the State of Michigan. Report by the MI Dept. of Natural Resources, Wildlife Division, Natural Heritage Program. Michigan Natural Features Inventory report number 2001-17. 19 pp. + appendices.
- Lichvar, R.W. 2012. The National Wetland Plant List. USACE Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. 224 pp.
- Lichvar, R.W. and J.T. Kartesz. 2009. *North American digital flora: national wetland plant list*, version 2.4.0. USACE Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. Accessed <a href="https://wetland\_plants.usace.army.mil">https://wetland\_plants.usace.army.mil</a>.
- Michigan Department of Environmental Quality: Water Bureau. 2008. Qualitative Biological and Habitat Survey Protocols for Wadeable Streams and Rivers: Revised 2008. Lansing, MI.
- Michigan Department of Natural Resources. 2012. Michigan Rapid Assessment Method for Wetlands (MiRAM), Version 2.1. DNRE, Lansing, Michigan.
- Reed, P.B., Jr. 1988. National list of plant species that occur in wetlands: national summary. U.S. Fish and Wildlife Service Biological Report 88(24). 244 pp.
- Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a Citizen-based Bird Observation Network in the Biological Sciences. Biological Conservation 142: 2282-2292.



- U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, C.V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Department of the Interior. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. L.M. Cowardin, V. Carter, F. Golet, and E.T. LaRoe. Washington DC: Fish and Wildlife Service Office of Biological Services.



### **TABLES**



Table 1. Primary Rivers, Streams, and Drainage Systems Mapped within the Study Area

Watercourse
Michigan Department of Transportation I-275 at M-153 (Ford Road) Study Area
Fellows Creek
Tonquish Creek
Willow Creek



Table 2. NWI Wetland Types Mapped within the Study Area

Wetland Type (Symbol)	Wetland Classification Description		
Michigan Department of Transportation I-275 and M-153 (Ford Road) Study Area			
PEMAd	Palustrine, Emergent, Temporarily Flooded, Partially Drained/Ditched		
PEMB	Palustrine, Emergent, Saturated		
PFOC	Palustrine, Forested, Seasonally Flooded		
PFO1C	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded		
PUBGx	Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated		



Table 3. Soil Types Mapped within the Study Area

Map Unit Symbol	Soil Unit Name	Hydric Classification		
Michigan Department of Transportation I-275 at M-153 (Ford Road) Study Area				
Ва	Belleville loamy fine sand	Partially Hydric		
BbB	Blount loam, 0 to 4 percent slopes	Partially Hydric		
BcA	Blount-Pewamo loams, 0-2 percent slopes	Partially Hydric		
Со	Corunna fine sandy loam	Partially Hydric		
Cu	Cut and fill land	Unknown Hydric		
Gf	Gilford sandy loam	Partially Hydric		
Gr	Granby loamy fine sand	Partially Hydric		
KnA	Kibbie fine sandy loam, 0 to 3 percent slopes	Partially Hydric		
Ма	Made land	Unknown Hydric		
MeA	Metamora sandy loam, 0 to 3 percent slopes	Partially Hydric		
MfA	Metamora-Pewamo complex, 0 to 3 percent slopes	Partially Hydric		
MhB	Metea loamy sand, 2 to 6 percent slopes	Not Hydric		
OaB	Oakville fine sand, 0 to 6 percent slopes	Not Hydric		
OwB	Owosso-Morley complex, 2 to 6 percent slopes	Not Hydric		
Pc	Pella silt loam	Partially Hydric		
Pe	Pewamo loam	Partially Hydric		
SeA	Selfridge loamy sand, 0 to 3 percent slopes	Partially Hydric		
ShB	Shoals silt loam	Partially Hydric		
So	Sloan silt loam, wet	All Hydric		
SpB	Spinks loamy sand, 0 to 6 percent slopes	Not Hydric		
TeA	Tedrow loamy fine sand, 0 to 2 percent slopes	Partially Hydric		
TfA	Tedrow loamy fine sand, loamy substratum, 0 to 2 percen	Partially Hydric		
ThA	Thetford loamy sand, 0 to 2 percent slopes	Partially Hydric		
W	Water	Unknown Hydric		
WaA	Wasepi loamy sand, 0 to 2 percent slopes	Partially Hydric		
WeA	Wasepi loamy sand, loamy substratum, 0 to 2 percent slo	Partially Hydric		



Table 4. Summary of Delineated Wetlands and Representative Upland Communities within the Study Area

Feature ID	Likely Regulatory Status	Acres	FQI
Michigan Department of Tr	ansportation I-275 at M-153 (Ford Roa	ad) Study Area	
WC-001	Regulated	0.27	10.3
WC-002	Not Regulated	0.01	9.9
WC-003	Regulated	0.12	4.2
WC-004	Regulated	0.32	6.9
WC-005	Regulated	0.01	5.1
WC-006	Regulated	0.03	6.0
WC-007	Regulated	0.02	1.0
WC-008	Regulated	0.01	3.0
WC-009	Regulated	0.01	0.0
WC-010	Regulated	0.03	3.5
WC-011	Regulated	0.01	8.5
WC-012	Regulated	0.03	4.9
WC-013	Regulated	0.02	3.4
WC-014	Regulated	0.01	3.1
WC-015	Regulated	0.07	8.5
WC-016	Regulated	0.03	7.7
WC-017	Regulated	0.50	10.8
WC-018	Regulated	0.25	8.7
WC-019	Regulated	0.01	8.1
WC-020	Regulated	0.30	8.9
WC-021	Regulated	0.15	5.8
WC-022	Regulated	0.26	13.8
WC-023	Regulated	1.06	11.5
WC-024	Regulated	0.02	3.0
WC-025	Regulated	0.01	5.0
WC-026	Regulated	0.01	10.9
WC-027	Regulated	0.01	8.3
WC-028	Regulated	0.34	10.3
WC-029	Regulated	0.12	6.7
WC-030	Regulated	0.37	6.3
WC-031	Regulated	0.61	11.9
WC-032	Regulated	0.07	4.9
WC-033	Regulated	0.19	10.6
WC-034	Regulated	0.46	6.9
WC-035	Regulated	0.03	5.3
WC-036	Regulated	0.26	10.1
WC-037	Regulated	0.02	7.8
WC-038	Regulated	0.05	4.6
WC-039	Regulated	0.24	6.0
WC-040	Regulated	0.48	14.0
WC-041	Regulated	0.46	11.1
WC-041			9.6
W/39-20-07	Regulated	0.21	4.0
WC-043	Regulated	0.01	_
WC-044	Regulated	0.17	9.2
WC-045	Regulated	0.53	6.8
WC-046	Regulated	0.05	3.9



Table 4. Summary of Delineated Wetlands and Representative Upland Communities within the Study Area

Feature ID	Likely Regulatory Status	Acres	FQI
Michigan Department of Tra	nsportation I-275 at M-153 (Ford Roa	ad) Study Area	
WC-047	Regulated	0.25	7.0
WC-048	Regulated	0.15	7.8
WC-049	Regulated	0.08	6.6
WC-050 Along Ditch	Regulated	0.70	9.3
WC-050 Along Stream	Regulated	1.04	10.9
WC-051	Regulated	1.38	12.9
WC-052	Regulated	0.26	7.8
WC-053	Regulated	0.26	10.7
WC-054	Regulated	0.16	4.1
WC-055	Regulated	0.04	2.3
WC-056	Regulated	0.02	4.9
WC-057	Not Regulated	0.53	9.6
WC-058	Regulated	4.93	11.5
WC-059	Regulated	0.52	9.3
WC-060	Regulated	0.08	3.0
WC-061	Regulated	0.15	8.3
WC-062	Regulated	0.12	4.9
WC-063	Regulated	0.06	6.5
WC-064	Regulated	0.02	4.0
WC-065	Regulated	0.14	13.2
WC-066	Regulated	0.09	11.6
WC-067 Along Ditch	Regulated	2.46	11.9
WC-067 Along Stream	Regulated	2.04	12.2
WC-068	Regulated	0.03	13.4
WC-069	Regulated	0.29	11.5
WC-070	Regulated	0.12	7.9
WC-071	Regulated	0.16	4.2
WC-072	Regulated	0.04	11.3
WC-073	Regulated	0.07	7.1
WC-074	Regulated	0.15	19.4
WC-075	Regulated	0.40	8.7
WC-076	Regulated	0.03	9.8
WC-077	Regulated	0.13	17.2
WC-078	Regulated	0.01	2.0
WC-079	Regulated	0.32	18.3
WC-080	Regulated	0.01	8.1
WC-081	Regulated	2.47	25.6
WC-082	Regulated	0.41	13.2
WC-083	Regulated	0.00	7.3
WC-084	Regulated	0.03	5.8
WC-085	Regulated	1.38	16.9
WC-086	Regulated	0.02	4.0
WC-087	Regulated	0.02	7.6
WC-087 WC-088	Regulated	0.26	4.0
WC-089	Regulated	0.03	11.4



Table 4. Summary of Delineated Wetlands and Representative Upland Communities within the Study Area

Feature ID	Likely Regulatory Status	Acres	FQI		
Michigan Department of Transportation I-275 at M-153 (Ford Road) Study Area					
WC-090	Regulated	0.98	8.2		
WC-091	Regulated	0.26	12.6		
WC-092	Regulated	0.04	8.7		
WC-093	Regulated	0.07	6.7		
WC-094	Regulated	0.92	9.4		
WC-095	Regulated	0.02	9.5		
WC-096	Regulated	0.04	1.5		
WC-097	Regulated	0.02	6.3		
WC-098	Regulated	0.03	8.3		
WC-099	Regulated	0.07	5.9		
WC-100	Regulated	0.01	3.0		
WC-101	Regulated	0.15	12.1		
WC-102	Regulated	0.04	9.5		
WC-103	Regulated	0.03	10.8		
WC-104	Regulated	4.40	23.8		
WC-105	Regulated	0.02	10.0		
WC-106	Regulated	0.14	15.0		
WC-107	Regulated	0.83	11.1		
WC-108	Regulated	0.05	7.8		
WC-109	Regulated	0.01	7.9		
WC-110	Regulated	0.37	13.0		
WC-111	Regulated	0.36	12.5		
WC-112	Regulated	0.02	10.8		
Representative Old Field 1	N/A	4.52	5.1		
Representative Old Field 2	N/A	1.90	11.7		
Representative Shrubland 1	N/A	1.94	5.8		
Representative Shrubland 2	N/A	2.52	8.3		
Representative Woodland 1	N/A	8.19	12.0		
Representative Woodland 2	N/A	1.37	7.0		
Representative Woodland 3	N/A	6.59	22.5		
Representative Woodland 4	N/A	7.85	32.5		
Representative Woodland 5	N/A	5.00	20.2		



Table 5. Summary of Stream Habitat Scores within the Study Area

Stream	Stream Habitat Score Habitat Rating			
Michigan Department of Transportation I-275 at M-153 (Ford Road) Study Area				
Tonquish Creek - Site 1	95	Marginal		
Willow Creek - Site 2	63	Marginal		
Fellows Creek - Site 3	59	Marginal		
Fellows Creek - Site 4	70	Marginal		
Willow Creek - Site 5	52	Poor		
Tonquish Creek - Site 6	87	Marginal		



Table 6. Summary of Stream Macroinvertebrate Sampling Results within the Study Area

TAXA	Tonquish Creek Site 1	Willow Creek Site 2	Fellows Creek Site 3	Fellows Creek Site 4	Willow Creek Site 5	Tonquish Creek Site 6	
Michigan Department of Transportation I-275 at M-153 (Ford Road) Study Area							
PLATYHELMINTHES (flatworms)							
Turbellaria	0	1	4	3	0	0	
ANNELIDA (segmented worms)							
Hirudinea (leeches)	0	4	2	0	0	0	
Oligochaeta (worms)	2	6	1	4	0	0	
ARTHROPODA							
Crustacea							
Amphipoda (scuds)	8	3	0	4	2	0	
Decapoda (crayfish)	23	7	10	13	16	17	
Isopoda (sowbugs)	0	0	7	3	4	0	
Hydracarina	1	0	0	0	0	0	
Insecta	-		·	-		-	
Ephemeroptera (mayflies)							
Baetidae	2	0	0	0	0	0	
Odonata							
Anisoptera (dragonflies)							
Aeshnidae	0	0	1	0	0	1	
Gomphidae	0	9	0	0	0	0	
Libellulidae	0	3	0	0	0	0	
Zygoptera (damselflies)							
Calopterygidae	1						
Coenagrionidae	24	12		6		1	
Hemiptera (true bugs)							
Corixidae	3	0	9	0	0	0	
Gerridae	17	0	0	0	4	5	
Notonectidae	0	0	4	0	0	0	
Pleidae	0	0	0	1	1	0	
Veliidae	0	0	0	1	0	0	
Trichoptera (caddisflies)							
Hydropsychidae	34	0	0	22	0	0	
Limnephilidae	0	0	0	3	0	0	



Table 6. Summary of Stream Macroinvertebrate Sampling Results within the Study Area

TAXA	Tonquish Creek Site 1	Willow Creek Site 2	Fellows Creek Site 3	Fellows Creek Site 4	Willow Creek Site 5	Tonquish Creek Site 6
Michigan Department of Transportation I-	275 at M-153 (Ford Roa	d) Study Area				
Coleoptera (beetles)						
Dytiscidae (total)	0	2	0	0	0	0
Psephenidae (adults)	0	0	48	0	0	0
Elmidae	4	0	0	0	0	0
Diptera (flies)						
Ceratopogonidae	2	0	0	0	0	0
Chironomidae	114	51	42	70	72	14
Simuliidae	4	0	0	0	0	0
MOLLUSCA						
Gastropoda (snails)						
Ancylidae (limpets)	14	0	4	29	0	3
Physidae	0	69	12	4	0	1
Planorbidae	0	0	0	1	0	0
Viviparidae	0	1	0	0	0	0
Pelecypoda (bivalves)						
Sphaeriidae (clams)	0	28	17	0	0	0
Corbiculidae	0	7	0	8	4	0
Total Individuals	253	203	161	172	103	42



Table 7. Summary of Stream Macroinvertebrate Metric Evaluation within the Study Area

Macroinvertebrate Metrics	Tonquis Sit	h Creek e 1	Willow Sit	Creek e 2		s Creek e 3		s Creek e 4		r Creek e 5		h Creek e 6
Michigan Department of Transportation I-275 at N	1-153 (For	d Road) S	tudy Area									
	Metric Value	Metric Score										
Metric 1 - Total Number Of Taxa	15	0	14	0	13	0	15	0	7	-1	8	-1
Metric 2 - Number Of Mayfly Taxa	1	-1	0	-1	0	-1	0	-1	0	-1	0	-1
Metric 3 - Number Of Caddisfly Taxa	1	-1	0	-1	0	-1	2	0	0	-1	0	-1
Metric 4 - Number Of Stonefly Taxa	0	-1	0	-1	0	-1	0	-1	0	-1	0	-1
Metric 5 - Percent Mayfly Composition	0.07%	-1	0%	-1	0%	-1	0%	-1	0%	-1	0%	-1
Metric 6 - Percent Caddisfly Composition	0%	-1	0%	-1	0%	-1	15%	-1	0%	-1	5%	-1
Metric 7 - Percent Dominant Taxon	45%	-1	34%	0	30%	0	41%	-1	70%	-1	40%	-1
Metric 8 - Percent Isopod, Snail, Leech	6%	0	2%	1	8%	0	19%	-1	0%	1	7%	0
Metric 9 - Percent Surface Dependent	9%	0	0.98%	1	38%	-1	1%	1	2%	1	12%	1
Total of Metric Scores	-(	5	-:	3	-(	6	-:	5		5	-6	5
Macroinvertebrate Community Rating	Po	or	Acce	otable	Po	or	Po	or	Po	or	Po	or



Table 8. Summary of Stream Fish Sampling Results within the Study Area

Common Name	Scientific Name	Tonquish Creek Site 1	Willow Creek Site 2	Fellows Creek Site 3	Fellows Creek Site 4	Willow Creek Site 5	Tonquish Creek Site 6			
Michigan Department of Tr	lichigan Department of Transportation I-275 at M-153 (Ford Road) Study Area									
Blacknose dace	Rhinichthys atratulus	16					no data			
Bluegill	Lempomis macrochirus	1			1	2	no data			
Bluntnose minnow	Pimephales notatus		3			29	no data			
Central mudminnow	Umbra limi				1		no data			
Central stoneroller	Campostoma anomalum pullum				2		no data			
Common shiner	Luxilus cornutus		1	3	6	5	no data			
Creek chub	Semotilus atromaculatus	35	5		51	83	no data			
Fathead minnow	Pimephales promelas	28					no data			
Green sunfish	Lempomis cyanellus	3	2	1	31	14	no data			
Johnny darter	Etheostoma nigrum nigrum	2	11	74	117	31	no data			
Largemouth bass	Micropterus salmoides		1	1			no data			
Mottled sculpin	Cottus bairdii				1		no data			
White sucker	Catostomus commersonii				12	1	no data			
	Total	85	23	79	222	165	no data			



Table 9. Summary of Stream Fish Metric Evaluation within the Study Area

Fish Metrics		Tonquish Creek Site 1		Creek e 2	Fellows Creek Site 3		Fellows Creek Site 4		Willow Creek Site 5		Tonquish Creek Site 6
ichigan Department of Transportation I-275 at M-153 (Ford Road) Study Area											
	N	/leasure	ments								
Water temperature (F°)	7	4	7	6	7	<b>'</b> 6	7	75	7	7	no data
Total time in station (minutes)	5	0	4	0	4	-8	5	0	4	7	no data
Total number of fish identified	8	5	2	3	7	'9	22	22	16	65	no data
Metrics											
Metric 1 - Total Number of Fish Species	6	-1	6	-1	4	-1	9	0	7	-1	no data
Metric 2 - Number of Darter Species	1	-1	1	-1	1	-1	1	-1	1	-1	no data
Metric 3 - Number of Sunfish Species	2	0	1	-1	1	-1	2	0	2	0	no data
Metric 4 - Number of Sucker Species	0	-1	0	-1	0	-1	1	-1	1	0	no data
Metric 5 - Number of Intolerant Species	0	-1	0	-1	0	-1	1	-1	0	-1	no data
Metric 6 - Percentage of Total Sample as Omnivores	93%	-1	35%	0	0%	1	30%	0	68%	-1	no data
Metric 7 - Percentage of Total Sample as Insectivorous Fish	7%	-1	57%	0	99%	1	70%	1	30%	-1	no data
Metric 8 - Percentage of Total Sample as Piscovores	0%	-1	4%	0	1%	0	0%	-1	0%	-1	no data
Metric 9 - Percentage of Total Sample as Tolerant Species	99%	-1	91%	-1	95%	-1	95%	-1	96%	-1	no data
Metric 10 - Percentage of Total Sample as Simple Lithophilic Spawners	19%	0	4%	0	4%	0	8%	0	4%	0	no data
Total of Metric Scores		-8		-6		-4		-4		7	no data
Fish Community Rating	Po	or	Po	or	Acce	otable	Acce	otable	Po	or	no data



Table 10. Summary of Documented Vertebrate Species

Common Name	Scientific Name	FOTR <sup>1</sup>	eBird <sup>2</sup>	MBBA I/II <sup>3</sup>	MDOT <sup>4</sup>	Map Location <sup>5</sup>
Wood Frog	Rana sylvatica	Х				outside mapped limits
Chorus Frog	Psuedacris triseriata	Х			Х	WC-104
Spring Peeper	Psuedacris crucifer	Х				outside mapped limits
American Toad	Bufo americanus	Х				outside mapped limits
Leopard Frog	Rana pipiens	Х				outside mapped limits
Gray Tree Frog	Hyla versicolor	Х			Х	outside mapped limits
Green Frog	Rana calmitans	Х				outside mapped limits
Raccoon	Procyon lotor				X	WC-061 and WC-066
Fox Squirrel	Sciurus niger				Х	woodland
White-tailed Deer	Odocoileus virginianus				Х	WC-012
Canada Goose	Branta canadensis			/ - ON	X	developed and wetland
Wood Duck	Aix sponsa		Χ	P - P	X	woodland and edge
Mallard	Anas platyrhynchos		Х	FL - NE	Х	WC-089, WC-104
Great Egret	Ardea alba			NR - O	Х	WC-089
Green Heron	Butorides virescens			NR - V	Х	generalist
American Woodcock	Scolopax minor			C - S		open field and shrub
Spotted Sandpiper	Actitis macularius			NR - P		open field
Killdeer	Chraradrius vociferous			P - NE	Х	WC-066
Ring-billed Gull	Larus delawarensis		Х	NR - NR	Х	developed
Herring Gull	Larus argentatus			O - NR		developed
Rock Pigeon	Columba livia		Х	ON - ON	Х	developed
Mourning Dove	Zenaida macroura		Х	ON - NB	Х	generalist
Yellow-billed Cuckoo	Coccyzus americanus			X - NR		woodland
Eastern Screech-owl	Megascops asio			NY - NR		woodland
Great Horned Owl	Bubo virginianus			FL - ON		woodland
Turkey Vulture	Cathartes aura		Х	C - P	Х	generalist
Cooper's Hawk	Accipter cooperii			NR - P		woodland
Red-tailed Hawk	Buteo jamaicensis			ON - V		woodland
American Kestrel	Falco sparverius			/ - NR		open field and edge
Ring-necked Pheasant	Phasianus colchicus			P - NR		open field and edge
Northern Bobwhite	Colinus virginianus			X - NR		open field and edge
Chimney Swift	Chaetura pelagica			NR - S		generalist
Ruby-throated Hummingbird	Archilochus colubris			NR - A		woodland
Belted Kingfisher	Megaceryle alcyon			NR - V		stream and lake
Red-bellied Woodpecker	Melanerpes carolinus		X	NR - FY	X	woodland
Yellow-bellied Sapsucker	Sphyrapicus varius		Χ	NR - O		woodland
Downy Woodpecker	Picoides pubescens		Χ	P - FY	Х	woodland
Hairy Woodpecker	Picoides villosus		Χ	NR - FL		woodland
Northern Flicker	Colaptes auratus		Χ	P - S	Х	woodland and edge
Eastern Wood-pewee	Contopus virens		Χ	X - FL		woodland
Acadian Flycatcher	Empidonax virescens			X - NR		shrub
Willow Flycatcher	Empidonax traillii			X - S		shrub



Table 10. Summary of Documented Vertebrate Species

Common Name	Scientific Name	FOTR <sup>1</sup>	eBird <sup>2</sup>	MBBA I/II <sup>3</sup>	MDOT⁴	Map Location <sup>5</sup>
Least Flycatcher	Empidonax minimus		Χ	X - NR		woodland
Eastern Phoebe	Sayornis phoebe			NR - ON		generalist
Great Crested Flycatcher	Myiarchus crinitus		Х	X - S		woodland
Eastern Kingbird	Tyrannus tryrannus			X - P	Х	open field and edge
Blue Jay	Cyanocitta cristata		Х	AY - FY	Х	woodland
American Crow	Corvus brachyrhychos		Х	ON - NY	Х	woodland
Blue-headed Vireo	Vireo solitarius		Х			woodland
Yellow-throated Vireo	Vireo flavifrons		Х	X - NR		woodland
Red-eyed Vireo	Vireo olivaceus		Х	P - P		woodland
Warbling Vireo	Vireo gilvus			X - FY	Х	woodland and edge
Cedar Waxwing	Bombycilla cedorum			/ - FL		edge and developed
Verry	Catharus fuscescens		Х			woodland
Swainson's Thrush	Catharus ustulatus		Х	O - NR		woodland
Hermit Thrush	Catharus guttatus		Χ		Х	woodland
Wood Thrush	Hylocichla mustelina		Χ	NR - ON		woodland
American Robin	Turdus migratorius		X	AY - NE	Χ	woodland and edge
Gray Catbird	Dumetella carolinensis		X	X - NB		woodland and edge
Brown Thrasher	Toxostoma rufum			X - NR		edge
European Starling	Sturnus vulgaris		X	AY - FY	Χ	edge and developed
Red-breasted Nuthatch	Sitta Canadensis		X			Woodland developed
White-breasted Nuthatch	Sitta carolinensis		X	NR - FY	Χ	woodland
Brown Creeper	Certhia Americana			NR - O		woodland
Carolina Wren	Thryothorus Iudovicianus			NR - FL	Χ	woodland and edge
House Wren	Troglodytes aedon		X	X - FY	Χ	woodland and edge
Blue-gray Gnatcatcher	Polioptila caerulea			NR - X	Χ	woodland
Tree Swallow	Tachycineta bicolor			NR - V	Χ	generalist
Purple Martin	Progne subis			NY - NR		generalist
Northern Rough-wing. Swallow	Stelgidopteryx serripennis			NR - FY	Χ	edge and developed
Barn Swallow	Hirundo rustica			ON - FY	X	WC-066
Ruby-crowned Kinglet	Regulus calendula		Х		Χ	woodland and edge
Black-capped Chickadee	Poecile atricpillus		Х	P - FY	Χ	woodland
Tufted Titmouse	Baeolophus bicolor		X	X - FY	Χ	woodland
Horned Lark	Eremophila alprestris			/ - P		open field
House Sparrow	Passer domesticus		Х	AY - NB	Χ	edge and developed
Pine Siskin	Spinus pinus			O - NR		generalist
American Goldfinch	Spinus tristis		Χ	ON - FY	Х	edge and developed
House Finch	Carpodacus mexicanus		Χ	P - NE	X	edge and developed
Blue-winged Warbler	Vermivora cyanoptera		Χ			shrub and edge
Tennessee Warbler	Oreothlypis peregrina		Χ			woodland
Orange-crowned Warbler	Oreothlypis celata		Χ			woodland
Nashville Warbler	Oreothlypis ruficapilla		Χ			woodland
Northern Parula	Setophaga americana		Χ			woodland
Palm Warbler	Setophaga palmarum		Χ			woodland
Bay-breasted Warbler	Setophaga castanea		X			woodland



Table 10. Summary of Documented Vertebrate Species

Common Name	Scientific Name	FOTR <sup>1</sup>	eBird²	MBBA I/II <sup>3</sup>	MDOT⁴	Map Location <sup>5</sup>
American Redstart	Setophaga ruticilla		Χ	NR - O		woodland
Black-and-white Warbler	Mniotilta varia		Х			woodland
Ovenbird	Seirus aurocapillus		Х	X - O		woodland
Common Yellowthroat	Geothlypis trichas		Х	X - S		edge and developed
Yellow Warbler	Setophaga petechia		Х	X - S	Х	edge and developed
Chestnut-sided Warbler	Setophaga pensylvanica		Х			woodland
Magnolia Warbler	Setophaga magnolia		Х			woodland
Black-throated Blue Warbler	Setophaga caerulescens		Х			woodland
Yellow-rumped Warbler	Setophaga coronata		Х		Х	woodland and edge
Black-throated Green Warbler	Setophaga virens		Х			woodland
Blackburnian Warbler	Setophaga fusca		Х			woodland
Song Sparrow	Melospiza melodia		Х	AY - NY	Х	edge and developed
White-throated Sparrow	Zonotrichia albicollis		Х			woodland and edge
Dark-eyed Junco	Junco hyemalis		Х			edge and developed
Savannah Sparrow	Passerculus sandwichensis		Х	A - S		open field
American Tree Sparrow	Spizella arborea		Х			open field and edge
Chipping Sparrow	Spizella passerine			X - FL	Х	edge and developed
Field Sparrow	Spizella pusilla			X - NR		open field and shrub
Eastern Towhee	Pipilo erythrophthalmus		Х	X - NR		edge
Scarlet Tanager	Piranga olivacea		Х	NR - O		mesic woodland
Rose-breasted Grosbeak	Pheucticus Iudovicianus			NR - V		mesic woodland
Northern Cardinal	Cardinalis cardinalis		Х	AY - NE	Х	woodland and edge
Indigo Bunting	Passerina cyanea			X - S		woodland and edge
Baltimore Oriole	Icterus galbula		Х	X - FY	Х	woodland and edge
Red-winged Blackbird	Agelaius phoeniceus			ON - NY	Х	WC-033, 095, & 066
Eastern Meadowlark	Sturnella magna			AY		open field
Common Grackle	Quiscalus quiscula		Χ	P - NY	Х	edge and developed
Brown-headed Cowbird	Molothrus ater		Χ	FL - NE	Х	open field and shrub
Bobolink	Dolichonyx oryzivorus			AY		open field

- 1 FOTR = Friends of the Rouge Frog and Toad Survey (http://therouge.org/index.php?id=692869).
- 2 eBird = eBird (http://ebrid.org) survey results within 0.5 miles of study area.
- 3 MBBA I-II = Michigan Breeding Bird Atlas (www.MIBirdAtlas.org). MBBA data represent an entire quarter township in terms of survey area and those species in bold typeface represent species that would be expected to occupy cover types within the study area. Breeding codes are presented below.

#### OBSERVED

O = Species observed during its breeding season but no evidence of breeding in block. Individual birds in unlikely breeding habitat, flying over, or out of their normal breeding range without any indication of breeding belong in this category.

#### POSSIBLE

- / or # = Species (male or female) observed in suitable nesting habitat during its breeding season.
- X = Singing male present in suitable nesting habitat during its breeding season.

#### PROBABLE

- M = Seven or more singing males present in suitable nesting habitat during their breeding season.
- S = Singing male present at same location on at least two dates at least seven days apart or multiple (five or more) singing males on the same date during the breeding season.
- P = Pair observed in suitable nesting habitat during its breeding season.



Table 10. Summary of Documented Vertebrate Species

Common Name	Scientific Name	FOTR <sup>1</sup>	eBird <sup>2</sup>	MBBA I/II <sup>3</sup>	MDOT <sup>4</sup>	Map Location <sup>5</sup>
-------------	-----------------	-------------------	--------------------	---------------------------	-------------------	---------------------------

- T = Permanent territory presumed through defense (e.g., chasing other birds, or song at the same location on at least two occasions a week or more apart).
- C = Courtship behavior or copulation.
- N = Visiting probable nest-site.
- A = Agitated behavior or anxiety calls from adult(s).
- B = Nest building by wrens or excavation of holes by woodpeckers.

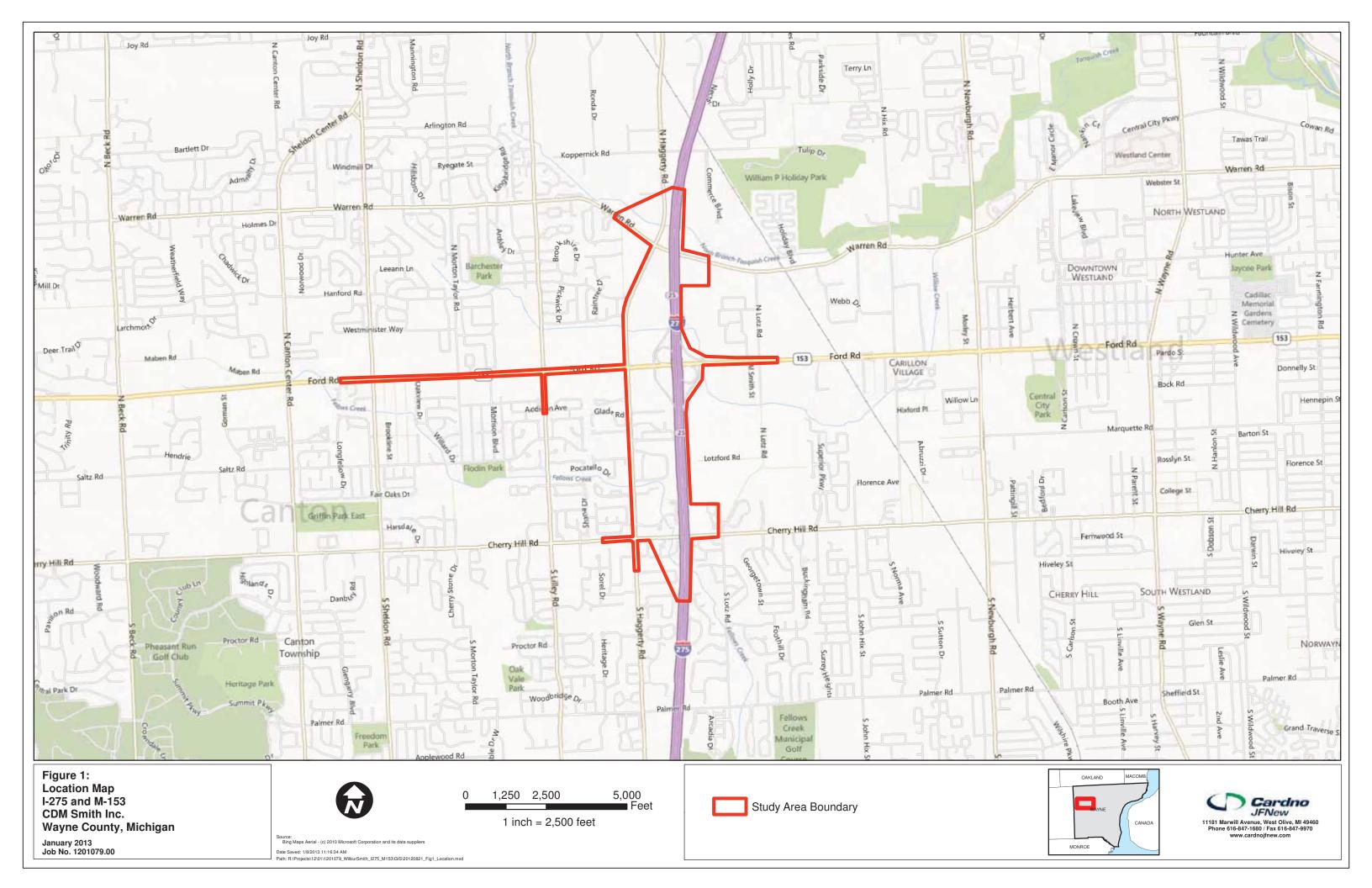
#### CONFIRMED

- NB = Nest building by all except woodpeckers and wrens.
- PE = Physiological evidence of breeding (e.g., highly vascularized, edematous incubation [brood] patch or egg in oviduct) based on bird in hand. Banders or biologists actually handling the birds are to use this code.
- DD = Distraction display or injury feigning.
- UN = Used nest or eggshells found. (These must be carefully identified.)
- FL = Recently fledged young (of altricial species) incapable of sustained flight or downy young (of precocial species) restricted to the natal area by dependence on adults or limited mobility.
- ON = Occupied nest: adults entering or leaving nest site in circumstances indicating occupied nest (includes high nests or nest holes, the contents of which cannot be seen) or adult incubating or brooding.
- AY = Attending young: adult carrying fecal sac or food for young, or feeding recently fledged young.
- FY= Adults with food for young (carrying food) or feeding young. Use caution as some species will continue to feed young for a number of weeks after leaving the nest and may move some distance.
- FS = Adult carrying fecal sac.
- NE = Nest with egg(s).
- NY = Nest with young seen or heard. Presence of a Brown-headed Cowbird egg or young is confirmation for both the cowbird and the host species.
- NR= Not Reported during atlas period.
- 4 MDOT = Michigan Department of Transportation biologist observation
- 5 Map Location = Location of observation or suitable habitat as depicted on Figure 5 Wetland/Stream Delineation and Vegetative Community Maps



## **FIGURES**





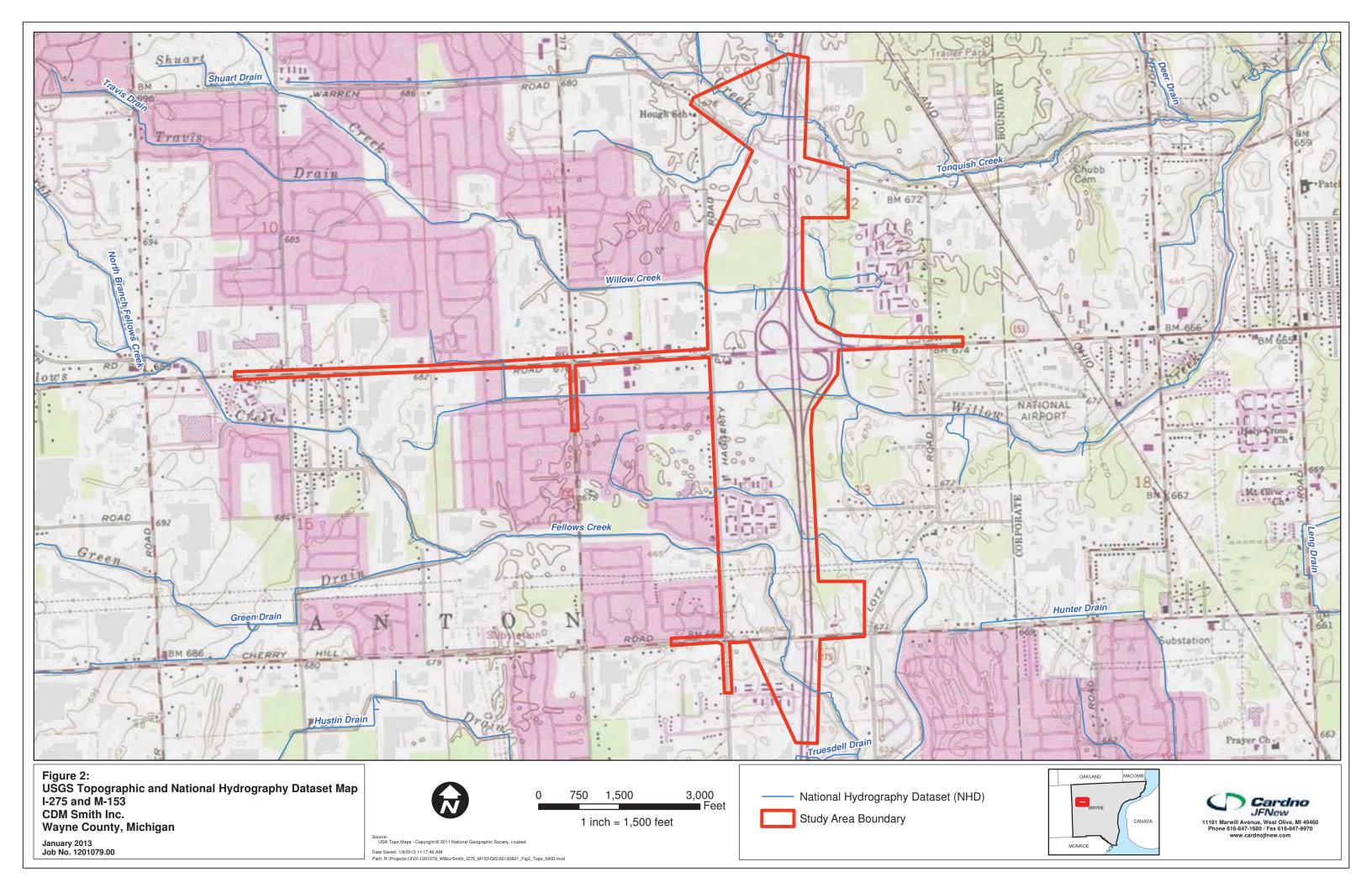
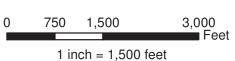




Figure 3: National Wetland Inventory Map I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

January 2013 Job No. 1201079.00



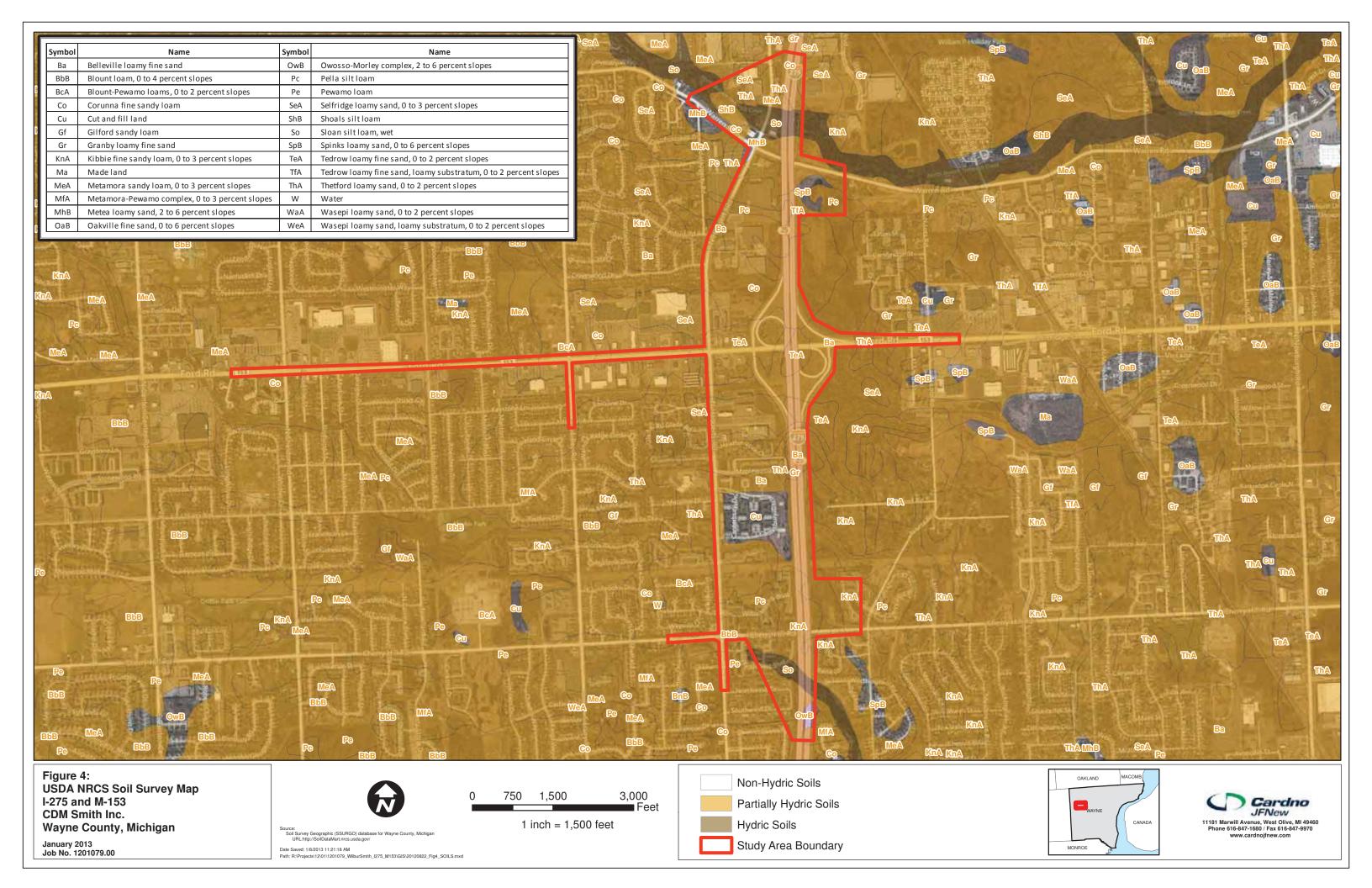


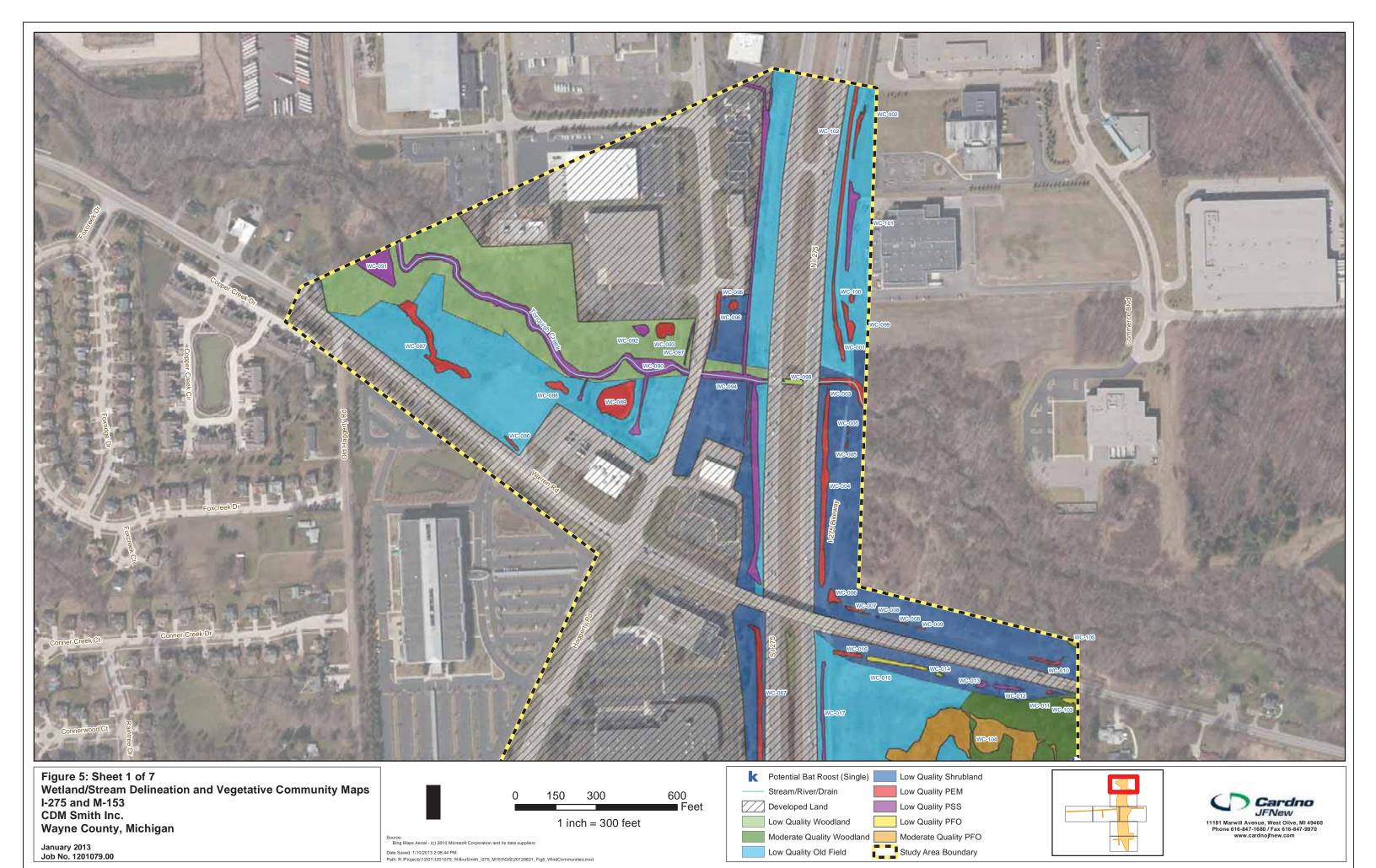
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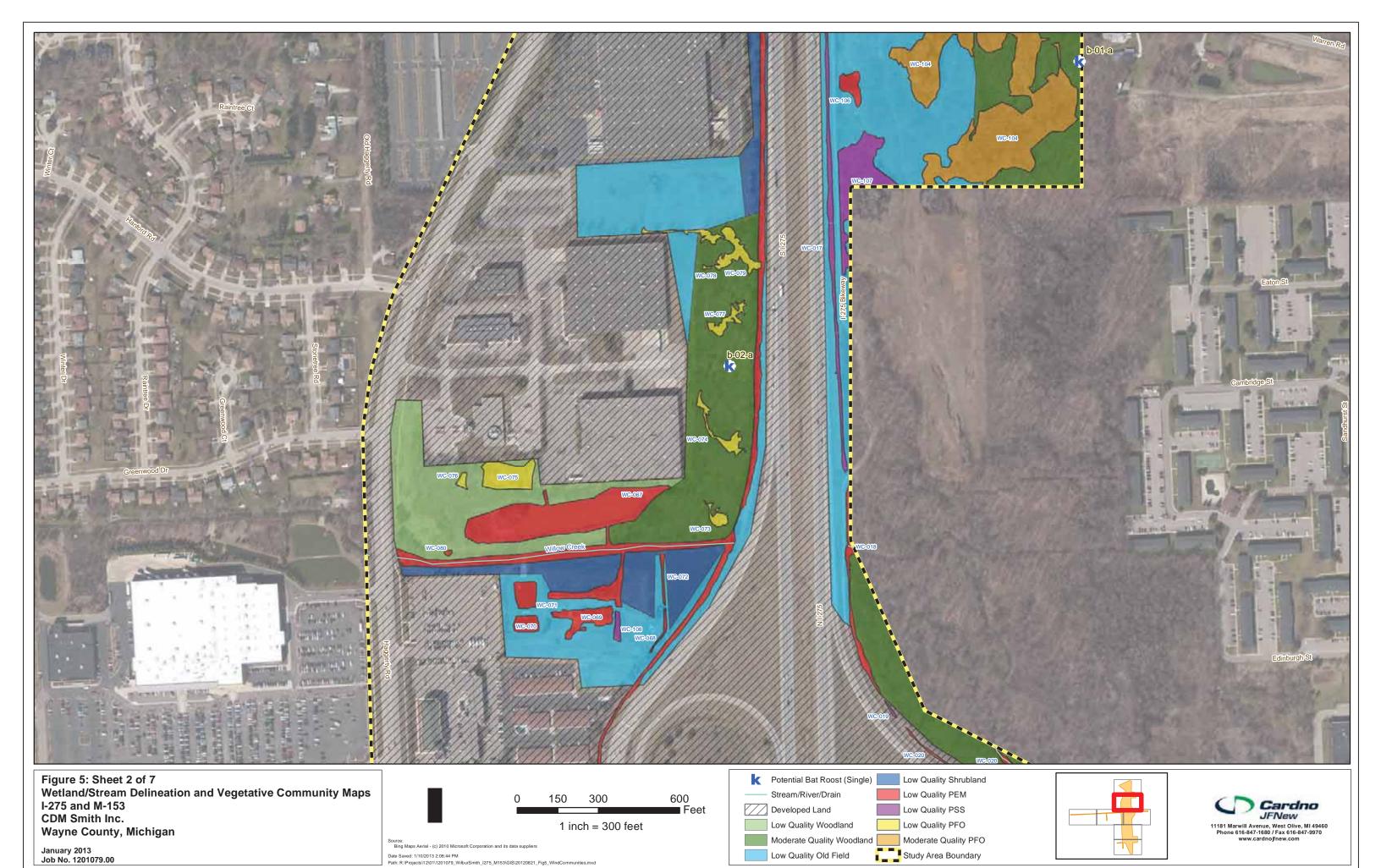












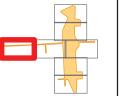


I-275 and M-153 CDM Smith Inc. Wayne County, Michigan January 2013 Job No. 1201079.00

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1 inch = 300 feet

Low Quality PSS Developed Land Low Quality PFO Low Quality Woodland Moderate Quality PFO Moderate Quality Woodland Study Area Boundary Low Quality Old Field

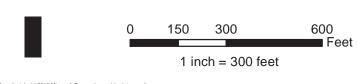


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Figure 5: Sheet 4 of 7
Wetland/Stream Delineation and Vegetative Community Maps
I-275 and M-153
CDM Smith Inc.
Wayne County, Michigan

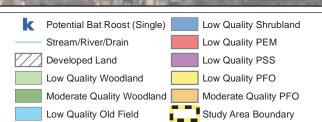
January 2013 Job No. 1201079.00

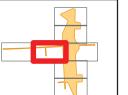


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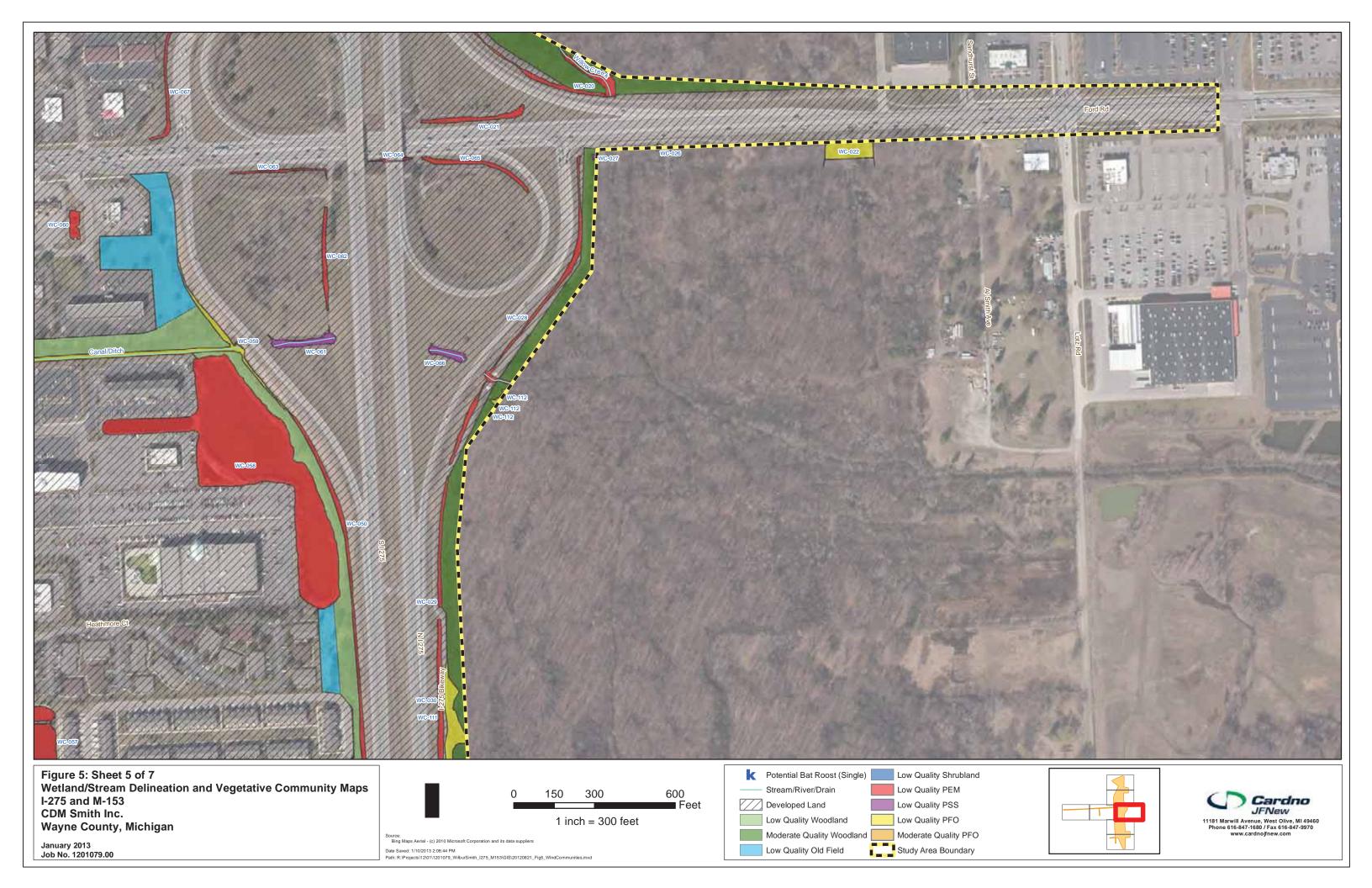
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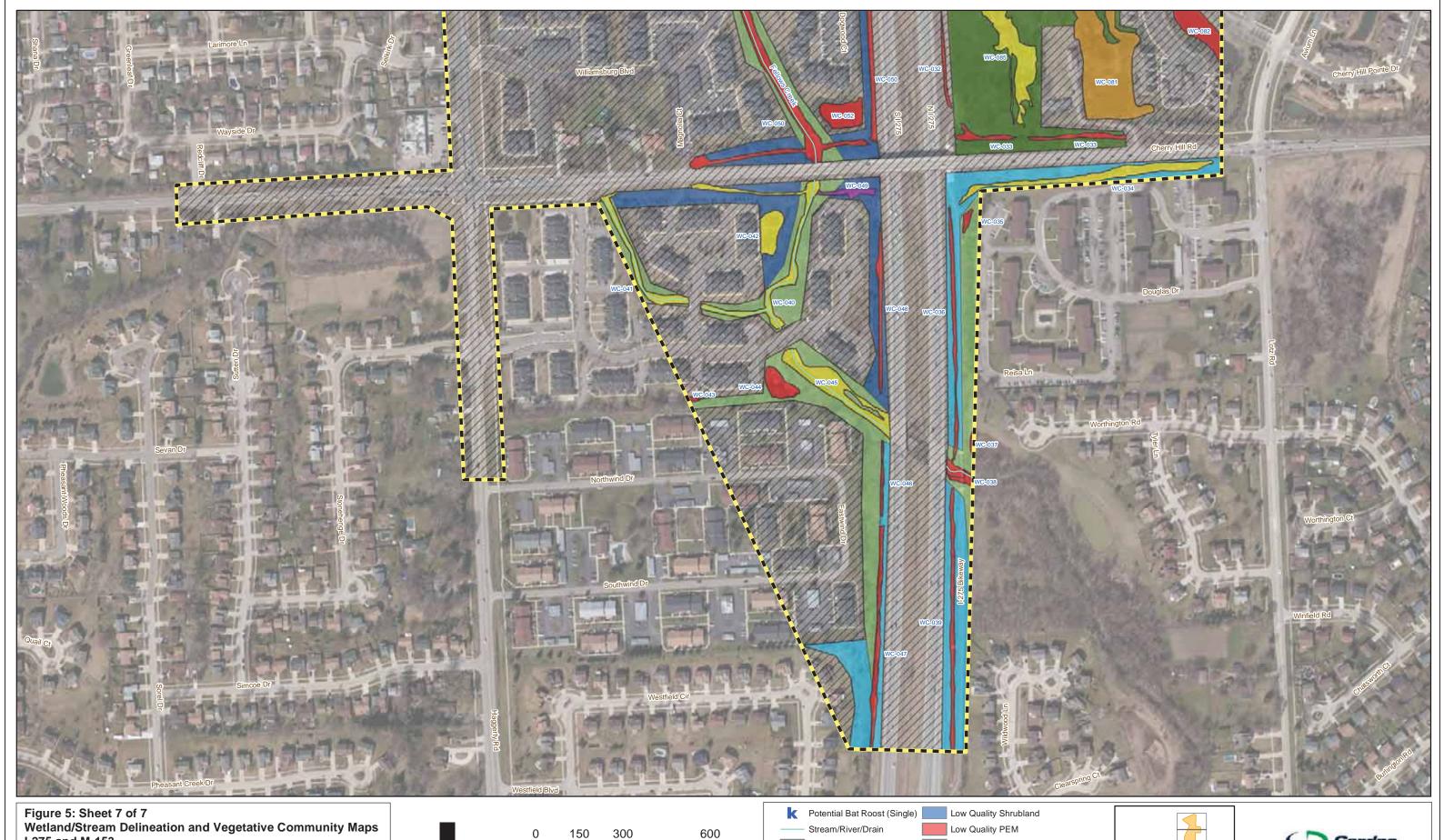










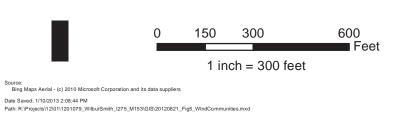


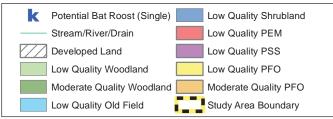
Wetland/Stream Delineation and Vegetative Community Maps I-275 and M-153
CDM Smith Inc.
Wayne County, Michigan

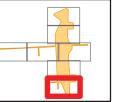
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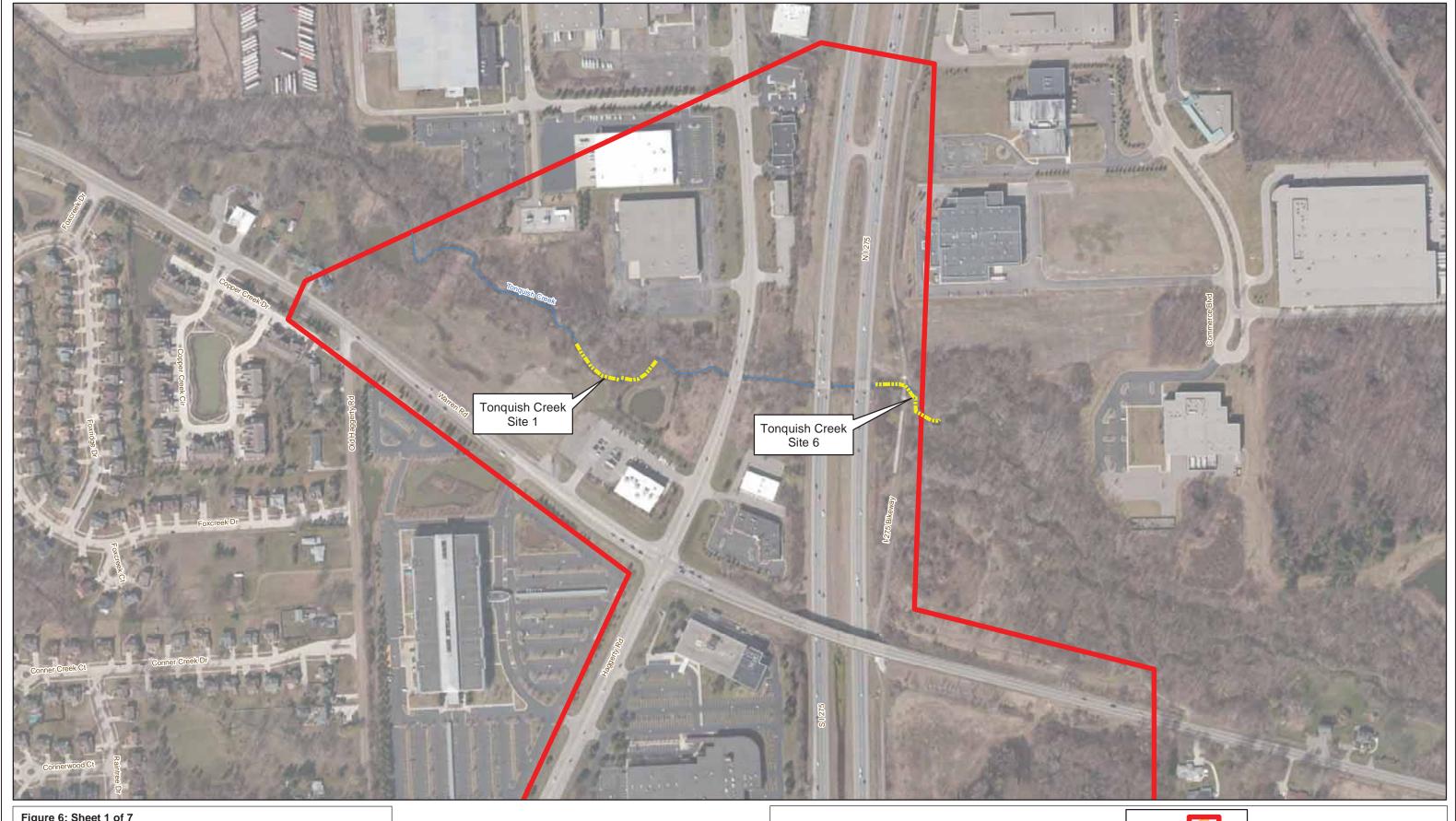


Figure 6: Sheet 1 of 7 Stream Assessment Locations I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

January 2013 Job No. 1201079.00 0 150 300 600 Feet

Source: Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

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Stream Assessment Location

— Stream/River/Drain

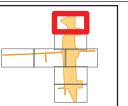






Figure 6: Sheet 2 of 7
Stream Assessment Locations
I-275 and M-153
CDM Smith Inc.
Wayne County, Michigan

January 2013 Job No. 1201079.00 0 150 300 600 Feet 1 inch = 300 feet

Source:
Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

Date Saved: 1/10/2013 1:34:28 PM

Path: R:\Projects\12:0111201079\_WilburSmith\_I275\_M153\GIS\20130108\_Fig6\_StreamSampling.mxd

Stream Assessment Location

--- Stream/River/Drain

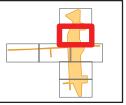






Figure 6: Sheet 3 of 7 Stream Assessment Locations I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

January 2013 Job No. 1201079.00

600 Feet 150 300 1 inch = 300 feet

Source: Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

Date Saved: 1/10/2013 1:34:28 PM
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Stream Assessment Location

Stream/River/Drain

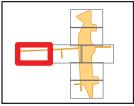






Figure 6: Sheet 4 of 7 Stream Assessment Locations I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

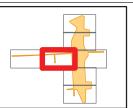
January 2013 Job No. 1201079.00 0 150 300 600 Feet 1 inch = 300 feet

Source: Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

Date Saved: 1/10/2013 1:34:28 PM
Path: R:\Projects\1201\1201\1201079\_WilburSmith\_I275\_M153\GIS\20130108\_Fig6\_StreamSampling.mxd

Stream Assessment Location

— Stream/River/Drain





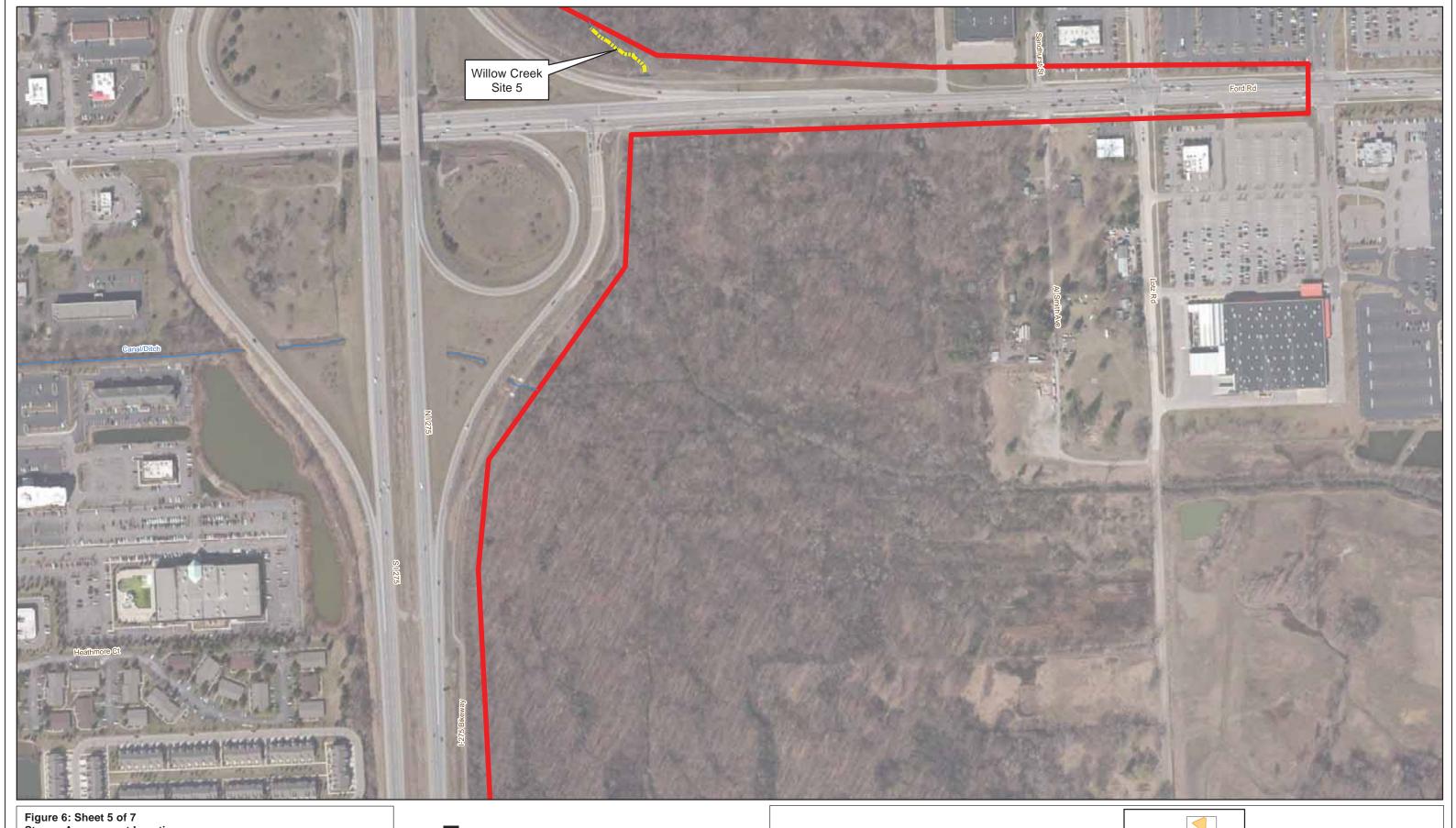


Figure 6: Sheet 5 of 7 Stream Assessment Locations I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

January 2013 Job No. 1201079.00

150 300 600 Feet 1 inch = 300 feet

Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

Date Saved: 1/10/2013 1:34:28 PM
Path: R:Projects\12\01\1201\1201\1201\1205\Landbar Similar M153\GIS\20130108\_Fig6\_StreamSampling.mxd

Stream Assessment Location

Stream/River/Drain

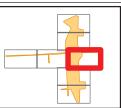






Figure 6: Sheet 6 of 7 Stream Assessment Locations I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

January 2013 Job No. 1201079.00

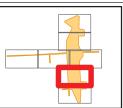
600 Feet 150 300 1 inch = 300 feet

Source: Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

Date Saved: 1/10/2013 1:34:28 PM
Path: R:Projects\12\01\1201\1201\1201\1205\Landbare Sampling.mxd

Stream Assessment Location

Stream/River/Drain





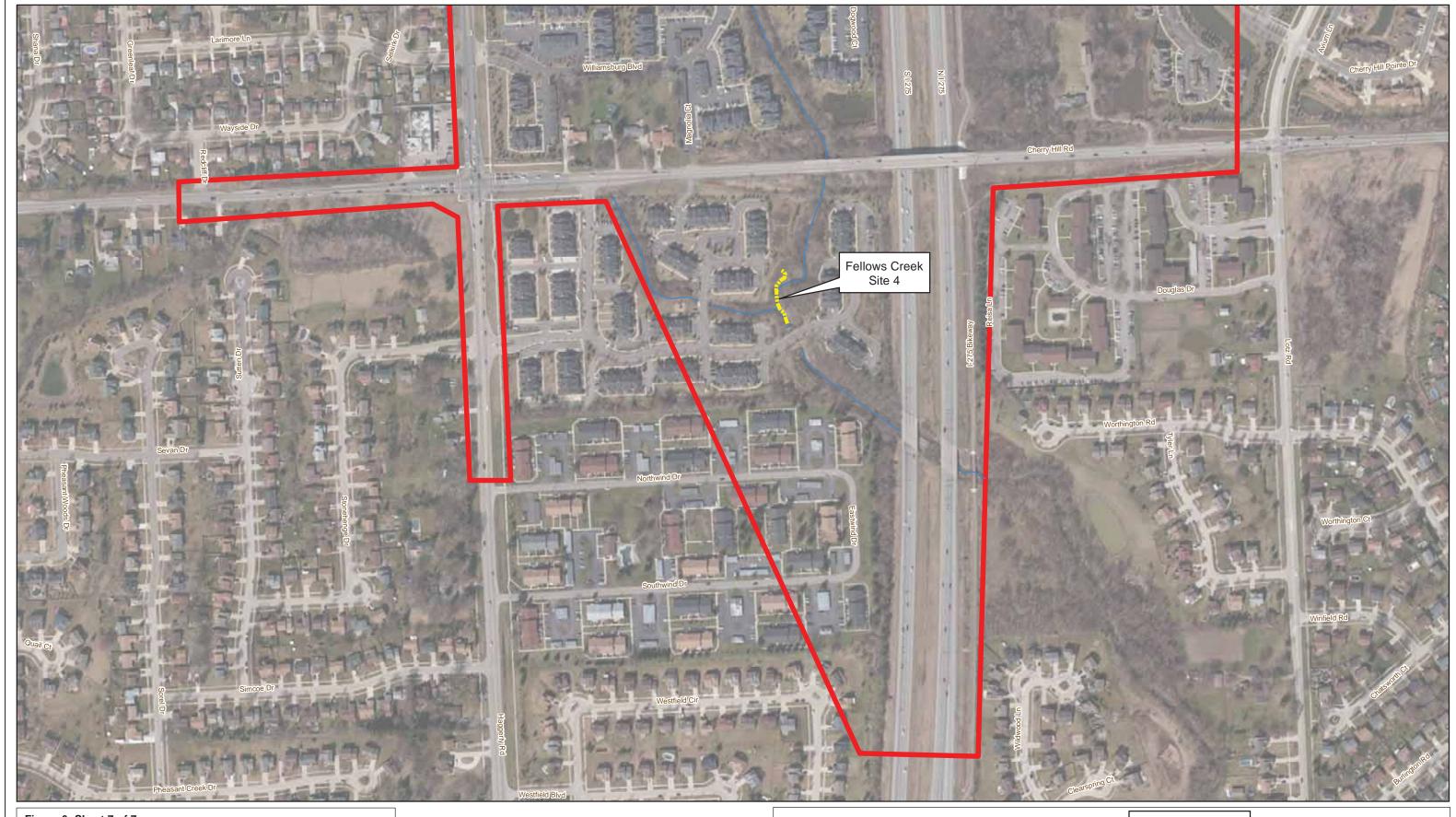


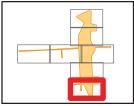
Figure 6: Sheet 7 of 7 Stream Assessment Locations I-275 and M-153 CDM Smith Inc. Wayne County, Michigan

January 2013 Job No. 1201079.00 0 150 300 600 Feet

Source: Bing Maps Aerial - (c) 2010 Microsoft Corporation and its data suppliers

Date Saved: 1/10/2013 1:34:28 PM
Path: R:Projects\12\01\1201\1201\1201\1205\Landbare Sampling.mxd

Stream Assessment Location
Stream/River/Drain
Study Area Boundary





# APPENDIX A: USACE Wetland Determination Data Forms



### WETLAND DETERMINATION DATA FORM -- Northcentral and Northeast Region

Project/Site:	I-275		Ci	ty/County: Wayne Co	ounty	Sampling Date: 7.9.2012
Applicant/Owner:	Michigan Department	of Transportation	ı		State: MI	Sampling Point: WC-023-DP1
Investigator(s):	J. Heslinga, R. Roos			Section, Towns	ship, Range: T8E, R2S, S12	
Landform (hillslope, te	errace, etc.): depre	ssion		Loca	al relief (concave, convex, none):	concave
Slope (%):	1% Lat:	42 19'19	9.84" Lor	ıg:	83 27'55.91"	Datum: UTM 16N
Soil Map Unit Name:	Pewamo Loam	1			NWI class	sification: None
Are climatic / hydrolog	gic conditions on the site	typical for this tin	ne of year?	Yes No	x (If no, explain in Remar	ks.)
Are Vegetation	n, Soil n	, or Hydrology	n significantly distur	bed? Are "	Normal Circumstances" present?	? Yes <u>No x</u>
Are Vegetation	n, Soil n	, or Hydrology	n naturally problema	atic? (If ne	eded, explain any answers in Re	marks.)
SUMMARY OF	FINDINGS Attac	h site map sh	nowing sampling p	oint locations, t	transects, important feat	ures, etc.
Hydrophytic Vegetat	ion Present?	Yes x	No	Is the Sampled A		
Hydric Soil Present?		Yes x	No	within a Wetland		x No
Wetland Hydrology F	Present?	Yes x	No	If yes, optional W	etland Site ID: WC-023	
Remarks: (Expla	ain alternative procedure	s here or in a sep	parate report.)	•		
Below average rainfa	alls for this time of year.	According to NO	AA, 2012 has been an a	bnormally dry year fo	or this area.	
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondary Indicators (m	inimum of two required)
	minimum of one is requir	ed; check all that	apply)		Surface Soil Cracks	
Surface Water	(A1)		Water-Stained Leaves (	B9)	Drainage Patterns	(B10)
High Water Tab			Aquatic Fauna (B13)		Moss Trim Lines (B	,
Saturation (A3)			Marl Deposits (B15)		Dry-Season Water	
Water Marks (E	*		Hydrogen Sulfide Odor		Crayfish Burrows (0	•
Sediment Depo		X	Oxidized Rhizospheres			on Aerial Imagery (C9)
Drift Deposits (I			Presence of Reduced In Recent Iron Reduction in		x Geomorphic Position	,
Iron Deposits (I			Thin Muck Surface (C7)	Trilled Solls (Co)	Shallow Aquitard (E	
	ble on Aerial Imagery (B	7)	Other (Explain in Remai	ks)	Microtopograpic Re	
	tated Concave Surface (		· Curor (Explain in recinal	no)	x FAC-Neutral Test (	
Field Observations						•
Surface Water Prese		No x	Depth (inches):			
Water Table Present		No x	· · · · -	<del></del>		
Saturation Present?	Yes	No x		Wetla	and Hydrology Present?	Yes x No
(includes capillary fri						
Describe Recorded	Data (stream gauge, mo	nitoring well, aeri	al photos, previous inspe	ections), if available:		
Remarks:						

Sampling Point:

WC-023-DP1

SOIL Sampling Point: WC-023-DP1

Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	10YR 3/2 97% 10YR 3/6 3% C M Sity Loam Prominent Redox 10YR 3/1 90% 10YR 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Interval Control of the Control of	10YR 3/2 97% 10YR 3/6 3% C M Silty Loam Prominent Redox 10YR 3/1 90% 10YR 4/6 10% C M Silty Loam Prominent Redox 10YR 4/2 70% 10YR 3/1 10% C M Loany Clay Organic matter leaching in 10YR 4/6 20% C M Prominent Redox in reduction and the reduction of the reduction	Prominent Redox  Prominent Redox  Organic matter leaching into laye  Prominent Redox in reduced laye  Prominent Redox in reduced laye  g, M=Matrix.  Pros for Problematic Hydric Soils <sup>3</sup> :  Crem Muck (A10) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  or Mucky Peat or Peat (S3) (LRR K, L, I)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Pron-Manganese Masses (F12) (LRR K, L, P)  Piedmont Floodplain Soils (F19) (MLRA 14	97%   10YR 3/6   3%   C   M   Sitty Loam   Prominent Redox	10YR 3/2 97% 10YR 3/6 3% C M Silty Loam Prominent Redox  10YR 3/1 90% 10YR 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, LR) Coast Prairie Redox (A16) (LRR K, L, RLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Sitts (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Dark Surface (A11) Depleted Matrix (F2) Depleted Matrix (F2) Thin Dark Surface (S3) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Sur	10YR 3/1 90% 10YR 4/6 10% C M Sity Loam Prominent Redox 10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/2 70% 10YR 4/6 20% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators for Problematic Hydric Soils*:  10YR 4/6 20% C M Indicators for Problematic Hydric	10/R 3/1 90% 10/R 4/6 10% C M Sitly Loam Prominent Redox 10/R 3/1 90% 10/R 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10/R 4/2 70% 10/R 4/6 20% C M Loamy Clay Organic matter leaching into layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Indicators for Problematic Hydric Soils*: 2 cm Muck (A10) (LRR K, L, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B) 3 cm (A2)
10YR 3/1 90% 10YR 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators (Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators (Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators (Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators (Prominent Redox (Prominent Red	10YR 3/1 90% 10YR 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox  10YR 4/6 20% C M Loamy Clay Prominent Redox  10YR 4/6 20% C M Loamy Clay Prominent Redox  10YR 4/6 20% C M Loamy Clay Prominent Redox  10YR 4/6 20% C M Loamy Clay Prominent Redox  10YR 4/6 20% C M Loamy Clayer.  10YR 4/6 20% C M Loamy Clayer.  10YR 4/6 20% C M Loamy Clay Prominent Redox in reduced layer.  10YR 4/6 20% C M Loamy Clay Prominent Redox in reduced layer.  10YR 4/6 20% C M Loamy Clay Prominent Redox in reduced layer.  10YR 4/6 20% C M Loamy Clay Prominent Redox in reduced layer.  10YR 4/6 20% C M Loamy Clayer.  10YE 4/6 20% C M Loamy Cla	10YR 3/1   90%   10YR 4/6   10%   C   M   Loamy Clay   Organic matter leaching in the prominent Redox   10YR 4/2   70%   10YR 3/1   10%   C   M   Loamy Clay   Organic matter leaching in the prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   Prominent Redox in reduction   10YR 4/6   20%   C   M   M   M   M   M   M   M   M   M	Organic matter leaching into laye Prominent Redox in reduced laye  Prominent Redox in reduced laye  g, M=Matrix.  Ors for Problematic Hydric Soils³: Com Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Coark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Tron-Manganese Masses (F12) (LRR K, L, P) Piedmont Floodplain Soils (F19) (MLRA 14	90% 10YR 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.    Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	10YR 3/1 90% 10YR 4/6 10% C M Silty Loam Prominent Redox  10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Indicators in reduce	10YR 3/1 90% 10YR 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Deletion, RM=Redox layer.  10YR 4/6 20% C M Loamy Clay Interview Int	10/R 3/1 90% 10/R 4/6 10% C M Loamy Clay Organic matter leaching into layer.  10/R 4/2 70% 10/R 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox in reduced layer.  10/R 4/6 20% C M Prominent Redox  10/R 4/6 20% C M Depleted layer.  10/R 4/6 20% C M Depleted Matrix (F3)
ncentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators:  Indicators:  Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators:  Indicators:  Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators:  Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators for Pro	10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 10YR 4/6 Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 10YR 4/6 Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6 10YR 4/6 C M M Depreted Layer.  10YR 4/6	10YR 4/2  70% 10YR 3/1  10YR 4/6  20% C M Prominent Redox in reduction, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  2Location: PL=Pore Lining, M=Matrix.  Indicators: Indicators for Problematic Hydric Soils  2 cm Muck (A10) (LRR K, L, MLRA  3 cm Mucky Peat or Peat (S3) (LRR  4 cast Prairie Redox (A16) (LRR K, L, M)  4 cast Prairie Redox (A16) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR  4 cast Prairie Redox (A16) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR  5 cm Muc	g, M=Matrix.  Prominent Redox in reduced layer  g, M=Matrix.  Pros for Problematic Hydric Soils <sup>3</sup> :  Com Muck (A10) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  or Mucky Peat or Peat (S3) (LRR K, L, I)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Ton-Manganese Masses (F12) (LRR K, L, P)  Piedmont Floodplain Soils (F19) (MLRA 14	ion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Polyvalue Below Surface (S8) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) E (A11) Depleted Matrix (F3) X Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)  Redox Depressions (F8)  DIAMAGE  M Loamy Clay Prominent Redox in reduced layer.  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Polyvalue	10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M M-Matrix.  10YR 4/6 20% C M M-Mat	antiration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.    10YR 4/6   20%   C   M   Prominent Redox in reduced layer.	10YR 4/2 70% 10YR 3/1 10% C M Loamy Clay Organic matter leaching into layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Prominent Redox in reduced layer.  10YR 4/6 20% C M Malatrix.  10YR
ncentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils  (A1) Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils  (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Isitic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky (Pat or Peat (S3) (LRR K, L, R)  Isitic (A3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Id Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR K, L)  Id Below Dark Surface (A11) Depleted Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L)  Irin Dark Surface (S9) (LRR K, L)  Irin Dark Surface (S9) (LRR K, L)  Redox Dark Surface (F6) Inon-Manganese Masses (F12) (LRR K, L, R)  Sleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 149B, 149B	Dentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Dentration, D=Depletion, RM=Reduced Matrix.  Indicators: Indicators for Problematic Hydric Soils*: 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A10) (LRR K, L, R) Coast Prairie Redox (A10) (LRR K, L,	ncentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators: Indicators: Indicators for Problematic Hydric Soils (A1) Polyvalue Below Surface (S8) (LRR R, Dippedon (A2) Pippedon (A2) Indicators: Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L, MLRA 149B) Indicators for Problematic Hydric Soils (LR K, L,	Prominent Redox in reduced layer  g, M=Matrix.  pres for Problematic Hydric Soils <sup>3</sup> :  c cm Muck (A10) (LRR K, L, MLRA 149B)  coast Prairie Redox (A16) (LRR K, L, R)  com Mucky Peat or Peat (S3) (LRR K, L, I)  prohyalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  ron-Manganese Masses (F12) (LRR K, L, I)  Piedmont Floodplain Soils (F19) (MLRA 14	ion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Polyvalue Below Surface (S8) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) E (A11) Depleted Matrix (F3) X Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)  Red Parent Material (F21) Very Shallow Dark Surface (TF12)	ncentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   **Location: PL=Pore Lining, M=Matrix.**  **Indicators:* (A1)	entration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   **Location: PL=Pore Lining, M=Matrix.**  licators:	Intration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   **Location: PL=Pore Lining, M=Matrix.**  Indicators for Problematic Hydric Soils*:  2 cm Muck (A10) (LRR K, L, MLRA 149B)  c (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Sulfide (A4)  Ayers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Depleted Matrix (F2)  Selow Dark Surface (A11)  Depleted Matrix (F3)  Surface (A12)  X Redox Dark Surface (F6)  Eyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 149B)  Red Parent Material (F2)  Very Shallow Dark Surface (TF12)  Coc (S7) (LRR R, LRR M, MLRA 149B)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
ncentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils <sup>3</sup> :  (A3) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Some Mucky Peat or Peat (S3) (LRR K, L, R)  (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, R)  (A5) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (A6) Below Dark Surface (A11) Depleted Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (A6) Mucky Mineral (S1) Depleted Dark Surface (F7) Pedmont Floodplain Soils (F19) (MLRA 1498)  (A6) Redox Depressions (F8) Red Parent Material (F21) Very Shallow Dark Surface (TF12)  (A1) Urder (S6) Urder (Explain in Remarks)  (A1) Matrix (S6) Very Shallow Dark Surface (TF12)  (A1) Whydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	centration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  dicators:	ncentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators: Indicators for Problematic Hydric Soils Indicators for Problematic Hydric Soils Indicators: Indicators: Indicators for Problematic Hydric Soils Indicators for Problem	g, M=Matrix.  Drs for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	ion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Polyvalue Below Surface (S8) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) E(A11) Depleted Matrix (F3) X Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)  Red Parent Material (F21) Very Shallow Dark Surface (TF12)	Incentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  ippedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  istic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Pate or Peat (S3) (LRR K, L, R)  istic (A3) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  istic (A3) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L, M)  istic (A3) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  istic (A12) X Redox Dark Surface (F6) Inon-Manganese Masses (F12) (LRR K, L, R)  iducky Mineral (S1) Depleted Dark Surface (F6) Piedmont Floodplain Soils (F19) (MLRA 149B)  iducky Mineral (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  iducky Mineral (S6) Very Shallow Dark Surface (TF12)  inface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	entration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.     Cators:   Indicators for Problematic Hydric Soils   1/2;	Intration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   **Location: PL=Pore Lining, M=Matrix.**    Castors:   Indicators for Problematic Hydric Soils*:
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  (Ipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Istic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (In Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (In Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (In Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Iron-Manganese Masses (F12) (LRR K, L, R)  (Iron-Manganese Masses (F12) (MLRA 149B)  (Iron-Manganese Masses (F12) (LRR K, L, R)  (Iron-Manganese Masses (F12) (LRR K, L)  (Iron-Manganese Masses (F12) (LRR	Indicators: Indicators for Problematic Hydric Soils (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA (A10)) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA (A10)) Polyvalue Below Surface (S9) (LRR R, MLRA (A19)) Polyvalue Below Surface (S9) (LRR R, MLRA (A19)) Polyvalue Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR R, MLRA (A19)) Polyvalue Below Surface (S8) (LRR R, L) Polyvalue Below Surface (S8) (LRR R, L) Polyvalue Below Surface (S8) (LRR R, L) Polyvalue Below Surface (S9) (LRR R, L) Polyvalue Surface (S	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Polyvalue Below Surface (S8) (LRR R,  MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Depleted Matrix (F2) Polyvalue Below Surface (F6) X Redox Dark Surface (F6) Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Red Parent Material (F21) Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A10) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Matrix (S6) Face (S7) (LRR R, LRR M, MLRA 149B)  (S6) Other (Explain in Remarks)  (S7) (LRR R, LRR M, MLRA 149B)  (S8) Other (Explain in Remarks)	Indicators: Indicators for Problematic Hydric Soils of (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA L49B) Coast Prairie Redox (A16) (LRR K, L, MLRA L49B) Som Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (A11) Depleted Matrix (F2) Dark Surface (A12) Mucky Mineral (S1) Depleted Dark Surface (F7) Depleted Matrix (S4)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils 2 cm Mucky (A10) (LRR K, L, MLRA L49B) Som Mucky Mineral (S1) Dark Surface (S9) (LRR R, MLRA L49B) Som Mucky Peat or Peat (S3) (LRR K, L, M) Dark Surface (S7) (LRR K, L, M) Dark Surface (S7) (LRR K, L, M) Dark Surface (A11) Depleted Matrix (F3) Depleted Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 144A	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A10) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Matrix (S6) Face (S7) (LRR R, LRR M, MLRA 149B)  (S6) Other (Explain in Remarks)  (S7) (LRR R, LRR M, MLRA 149B)  (S8) Other (Explain in Remarks)	Indicators: Indicators for Problematic Hydric Soils of (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA L49B) Coast Prairie Redox (A16) (LRR K, L, MLRA L49B) Som Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (A11) Depleted Matrix (F2) Dark Surface (A12) Mucky Mineral (S1) Depleted Dark Surface (F7) Depleted Matrix (S4)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils 2 cm Mucky (A10) (LRR K, L, MLRA L49B) Som Mucky Mineral (S1) Dark Surface (S9) (LRR R, MLRA L49B) Som Mucky Peat or Peat (S3) (LRR K, L, M) Dark Surface (S7) (LRR K, L, M) Dark Surface (S7) (LRR K, L, M) Dark Surface (A11) Depleted Matrix (F3) Depleted Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 144A	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12)  (Depleted Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  (Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)	Indicators: ol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR gen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) ed Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR gelow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LR Gelow Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 144A	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12)  (Depleted Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  (Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)	Indicators: ol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR gen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) ed Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR gelow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LR Gelow Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 144A	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12)  (Depleted Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  (Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)	Indicators: ol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Gen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) ed Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LR Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (M Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 1	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A16) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12)  (Depleted Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  (Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)	Indicators: ol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR gen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) ed Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR gelow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LR Gelow Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 144A	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Indicators: Indicators for Problematic Hydric Soils³:  I (A1)	Indicators for Problematic Hydric Soils <sup>3</sup> :  (A1) Polyvalue Below Surface (S8) (LRR R, Cast Prairie Redox (A10) (LRR K, L, MLRA 149B)  (Dependent (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  (Stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  (Dependent (A2) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  (Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  (Redox Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  (Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  (Redox Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  (Redox (S5) Matrix (S6) Face (S7) (LRR R, LRR M, MLRA 149B)  (S6) Other (Explain in Remarks)  (S7) (LRR R, LRR M, MLRA 149B)  (S8) Other (Explain in Remarks)	Indicators: ol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Gen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) ed Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LR Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (M Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 1	ors for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Oark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Indicators for Problematic Hydric Soils <sup>3</sup> :  Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  E (A11)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Mucky (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Indicators:  (A1) Polyvalue Below Surface (S8) (LRR R, polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Below Surface (S9) (LRR R, MLRA 149B) polyvalue Surface (S7) (LRR K, L, R) polyvalue Below Surface (S7) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L, M) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S8) (LRR K, L) polyvalue Below Surface (S9) (LRR K, L, R) polyvalue Below Surface (S9) (LRR K, L) polyvalue Selow Surface (S	icators: A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Below (A16) (LRR K, L, R) Polyvalue Peat or Peat (S3) (LRR K, L, R) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Polyvalue Below Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Bel	Indicators for Problematic Hydric Soils <sup>3</sup> :  At 1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  edon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  c (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  ayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  cky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5) Red Parent Material (F21)  latrix (S6) Red Parent Material (F21)  very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) pipedon (A2)	Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  pipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  stic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  n Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  rk Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  ucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B)  edox (S5) Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  face (S7) (LRR R, LRR M, MLRA 149B)  other (Explain in Remarks)  vydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ver (if observed):	Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA LA9B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Sep Sulfide (A4)  Eduary Mucky Mineral (F1) (LRR K, L)  Dark Surface (S7) (LRR K, L, M)  Dark Surface (A11)  Depleted Matrix (F2)  Dark Surface (A12)  X Redox Dark Surface (F6)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Gleyed Matrix (S4)  Polyvalue Below Surface (S8) (LRR K, L)  Iron-Manganese Masses (F12) (LR K, L)  Mesic Spodic (TA6) (MLRA 144A, 1	Com Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Com Mucky Peat or Peat (S3) (LRR K, L, I) Cork Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Polyvalue Below Surface (S8) (LRR R,  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  Depleted Matrix (F3)  X Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Polyvalue Below Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  poipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  istic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  en Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  d Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  ark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  ark Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox (S5) Red Parent Material (F21)  Wery Shallow Dark Surface (TF12)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Dedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  Dic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Dayers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Cx Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Cx Surface (A12) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  Cx Surface (S7) (LRR R, LRR M, MLRA 149B) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  Cx Curface (A12) Thin Dark Surface (S9) (LRR K, L)  Dark Surface (S7) (LRR K, L, M)  Dark Surface (S9) (LRR K, L, M)  Polyvalue Below Surface (S9) (LRR K, L, M)  Thin Dark Surface (S9) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L)  Polyvalue Below Surface (S7)	Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) edon (A2)
MIRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) En Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Depleted Matrix (F2) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Depleted Dark Surface (F6) Uron-Manganese Masses (F12) (LRR K, L, R) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Redox (S5) Depleted Dark Surface (F8) Redox (S5) Depleted Dark Surface (F8) Depleted Matrix (F8) Depleted Matrix (F8) Depleted Dark Surface (F8) Deplet	MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Layers (A5) Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (F6) Ucky Mineral (S1) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Depleted Matrix (S4) Depleted Dark Surface (F8) Dark Surface (S8) (LRR K, L) Dark Surface (S9) (LRR K, L) Dark Surface (S	Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, H-istic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Seen Sulfide (A4)  Ed Layers (A5)  Ed Below Dark Surface (A11)  Depleted Matrix (F3)  Derk Surface (A12)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Gleyed Matrix (S4)  Medica 149B)  Coast Prairie Redox (A16) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRF K, L, M)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRF K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LR M)  Mesic Spodic (TA6) (MLRA 144A, 1)	Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (F21) Very Shallow Dark Surface (TF12)	MIRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Some Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Matrix (F3) Thin Dark Surface (F6) Depleted Dark Surface (F7) Depleted Matrix (S4) Redox Depressions (F8) Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Wutcy Mineral (S7) (LRR R, LRR M, MLRA 149B) Depleted Dark Surface (F8) Depleted Dark Surface (F8) Depleted Dark Surface (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Dark Surface (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Dark Surface (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Dark Surface (F8) Depleted Dark Surface (F8) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Matrix (S4) Depleted Matrix (S4) Redox (S5) Depleted Matrix (S4) Redox (S5) Depleted Matrix (S4) Depl	MRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Thin Dark Surface (S9) (LRR R, MLRA 149B) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Sulface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Surface (A12) Coxy Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Matrix (S6) Matrix (S6) Material (S7) (LRR R, LRR M, MLRA 149B)  Methodox Other (Explain in Remarks)	medon (A2) medon (A2) medon (A2) medon (A2) medon (A2) medon (A3) medon (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B) Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) medical (A4) medic
en Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (S7) (LRR K, L, M) Dark Surface (S8) (LRR K, L) Dark Surface (S8) (LRR K, L) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Dark Surface (A12) Thin Dark Surface (S9) (LRR K, L) Dark Surface (S9) (LRR K, L	Loamy Mucky Mineral (F1) (LRR K, L)  Layers (A5)  Below Dark Surface (A11)  Redox Dark Surface (F6)  Leyed Matrix (F3)  Depleted Dark Surface (F7)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Medox (S7) (LRR R, LRR M, MLRA 149B)  Dark Surface (S7) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Other (Explain in Remarks)	gen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) ed Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRF Holly Surface (A11) Depleted Matrix (F3) Dark Surface (A12) X Redox Dark Surface (F6) Mucky Mineral (S1) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (M Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 1	Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Loamy Mucky Mineral (F1) (LRR K, L)  Dark Surface (S7) (LRR K, L, M)  Dark Surface (S7) (LRR K, L, M)  Dark Surface (S8) (LRR K, L)  Doubleted Matrix (F2)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L)  Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Selow Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Surface (A12) Surface (A12) Surface (A12) Surface (B12) Sur	Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L)  Layers (A5) Loamy Gleyed Matrix (F2)  Below Dark Surface (A11) Depleted Matrix (F3) Surface (A12) Surface (A12) Cky Mineral (S1) Depleted Dark Surface (F7) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  Depleted Dark Surface (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Dark Surface (S7) (LRR K, L) Dark Surface (S9) (LRR K, L) Dron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149E)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L)
d Layers (A5)  d Loamy Gleyed Matrix (F2)  d Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Redox (S5)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox (S5)  Mesic Spodic (TA6) (MLRA 149B)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  None observed	Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Iron-Manganese Masses (F12) (LRR K, L, R) Polyvalue Below Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Polyvalue Below Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Polyvalue Below Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Iron-Manganese Masses (F12) (LRR K, L) Iron-M	And Layers (A5)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S8) (LRF k, L)  Depleted Matrix (F3)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR k, L)  Dark Surface (A12)  X Redox Dark Surface (F6)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Gleyed Matrix (S4)  Redox Depressions (F8)  Polyvalue Below Surface (S8) (LRF k, L)  Thin Dark Surface (S9) (LRR k, L)  Iron-Manganese Masses (F12) (LR  Piedmont Floodplain Soils (F19) (M  Mesic Spodic (TA6) (MLRA 144A, 1	Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	d Layers (A5)  d Below Dark Surface (A11)  d Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Tron-Manganese Masses (F12) (LRR K, L, R)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Redox (S5)  Matrix (S6)  Matrix (S6)  Matrix (S6)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L, R)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 1498  Mesic Spodic (TA6) (MLRA 144A, 145, 1498  Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	Layers (A5) Loamy Gleyed Matrix (F2) Below Dark Surface (A11) Depleted Matrix (F3) Surface (A12) Country Surfa	Loamy Gleyed Matrix (F2)  Below Dark Surface (A11)  Depleted Matrix (F3)  Surface (A12)  Coxy Mineral (S1)  Depleted Dark Surface (F7)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 144B, 145, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 144B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 144B, 145, 149B)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 144B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 149B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 149B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 149B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 149B, 145, 149B)  Depleted Matrix (S6)  Mesic Spodic (TA6) (MLRA 149B, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 149B, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 149B, 149B)  Depleted Dark Surface (F8)  Mesic Spodic (TA6) (MLRA 149B, 149B)  Depleted Dark Surface (F8)  Depleted
d Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  None observed	Below Dark Surface (A11)  Depleted Matrix (F3)  rk Surface (A12)  x Redox Dark Surface (F6)  Liron-Manganese Masses (F12) (LRR K, L)  liron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149E)  leyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox (S5)  Matrix (S6)  face (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  yer (if observed):  One observed	ed Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Dark Surface (A12)  X Redox Dark Surface (F6)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Gleyed Matrix (S4)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LR  Piedmont Floodplain Soils (F19) (M  Mesic Spodic (TA6) (MLRA 144A, 1	Thin Dark Surface (S9) (LRR K, L) ron-Manganese Masses (F12) (LRR K, L, Piedmont Floodplain Soils (F19) (MLRA 14	Pe (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E)  Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	d Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Mucky Mineral (S1)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Redox (S5)  Matrix (S6)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	Below Dark Surface (A11)  Depleted Matrix (F3)  Surface (A12)  Surface (A12)  Depleted Dark Surface (F6)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Mesic Spodic (TA6) (MLRA 144B, 145, 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Other (Explain in Remarks)  Metrix (S6)  Other (Explain in Remarks)  Metrix (S6)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Mesic Spodic (TA6) (MLRA 149B)  Mesic Spodic (T	Below Dark Surface (A11)  Depleted Matrix (F3)  Surface (A12)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E)  dox (S5)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  dox (S7) (LRR R, LRR M, MLRA 149B)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Print Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Per (if observed):  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Mesic Spodic (TA6) (MLRA 149E)  Other A 144A, 145, 149B  Other (Explain in Remarks)
Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 1498 Redox (S4) Redox Depressions (F8) Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Urface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed): None observed	ucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 1498)  Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 1498)  Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  ydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  yer (if observed):  one observed	Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (M  Gleyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 1	Piedmont Floodplain Soils (F19) (MLRA 14	Depleted Dark Surface (F7)  Redox Depressions (F8)  Piedmont Floodplain Soils (F19) (MLRA 1498  Mesic Spodic (TA6) (MLRA 144A, 145, 1498  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149E Redox (S5) Redox Depressions (F8) Piedmont Floodplain Soils (F19) (MLRA 149E Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	cky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E  eyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B  dox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  ace (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  rdrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rer (if observed):  ne observed	cky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149E)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  dox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):  None observed	leyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  ydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  yer (if observed): one observed	Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 1		Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Redox (S5) Redox (S5) Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	eyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  rdrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rer (if observed): ne observed	yed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B dox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
Redox (S5)  d Matrix (S6)  urface (S7) (LRR R, LRR M, MLRA 149B)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):  None observed	edox (S5)  Matrix (S6)  face (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  ydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  yer (if observed):  one observed			Red Parent Material (F21)  Very Shallow Dark Surface (TF12)	Redox (S5)  Matrix (S6)  Matrix (S6)  Med Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):	dox (S5) Adatrix (S6) Acc (S7) (LRR R, LRR M, MLRA 149B)  red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	Red Parent Material (F21)   Very Shallow Dark Surface (TF12)   Other (Explain in Remarks)
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hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):  None observed	face (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  ydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  yer (if observed):  one observed		• • •		hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ayer (if observed):  Other (Explain in Remarks)	oce (S7) (LRR R, LRR M, MLRA 149B)  ordrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ordrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ordrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ordrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	drophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  er (if observed):  ne observed
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### WETLAND DETERMINATION DATA FORM -- Northcentral and Northeast Region

Project/Site:	I-275			City/County: Wa	yne County		Sampling Date: 7.9.2012
Applicant/Owner:	Michigan Departm	ent of Transporta	tion			State: MI	Sampling Point: WC-023-DP2
Investigator(s):	J. Heslinga, R. Ro	os		Section,	Township, Rar	nge: T8E, R2S, S12	
Landform (hillslope, te	rrace, etc.): ro	oad-side burm			Local relief (d	concave, convex, none):	convex
Slope (%):	2% Lat:	42 1	9'20.08"	Long:	83 27'5	55.87"	Datum: UTM 16N
Soil Map Unit Name:	Pewamo L	.oam				NWI class	ification: none
Are climatic / hydrolog	ic conditions on the	site typical for this	s time of year?	Yes	No x	(If no, explain in Remark	s.)
Are Vegetation	n , Soil	y , or Hydrolog	gy <u>n</u> significantly di	sturbed?	Are "Normal (	Circumstances" present?	Yes No x
Are Vegetation	n , Soil	n , or Hydrolog	gy naturally probl	ematic?	(If needed, ex	plain any answers in Re	marks.)
SUMMARY OF	FINDINGS At	tach site map	showing sampling	g point location	ns, transed	cts, important featu	ıres, etc.
Hydrophytic Vegetat	ion Present?	Yes	x No	Is the Sam	pled Area		
Hydric Soil Present?		Yes	No x	within a W	-	Yes	No x
Wetland Hydrology F	Present?	Yes	No x	If yes, option	nal Wetland S	ite ID:	
Remarks: (Expla	ain alternative proce	dures here or in a	separate report.)	•			
					ally dry year.	Soils include rocky fill dirt	along this roadside berm. Meets
indicator or nydropny	tic vegetation, but t	nere is no evidend	ce of hydrology or hydric	SOIIS.			
LIVEROLOGY							
HYDROLOGY							
Wetland Hydrology					9	Secondary Indicators (mi	
Primary Indicators (n		equired; check all				Surface Soil Cracks	'
Surface Water	` '		Water-Stained Leave	, ,	_	Drainage Patterns (	,
High Water Tab			Aquatic Fauna (B13)	)	_	Moss Trim Lines (B	
Saturation (A3) Water Marks (E			Marl Deposits (B15) Hydrogen Sulfide Od	dor (C1)	-	Dry-Season Water Crayfish Burrows (C	, ,
Sediment Depo	•		Oxidized Rhizospher	. ,	e (C3)		n Aerial Imagery (C9)
Drift Deposits (I			Presence of Reduce	_	_	Stunted or Stressed	• • • •
Algal Mat or Cr	,		Recent Iron Reduction	` ,	26)	Geomorphic Positio	` '
Iron Deposits (I			Thin Muck Surface (	,	_	Shallow Aquitard (D	
	ble on Aerial Imager	y (B7)	Other (Explain in Re	*	-	Microtopograpic Re	
Sparsely Veget	tated Concave Surfa	ace (B8)				FAC-Neutral Test (I	
Field Observations	:						
Surface Water Prese	ent? Yes	No	x Depth (inches):				
Water Table Present	t? Yes	No	x Depth (inches):				
Saturation Present?	Yes	No	x Depth (inches):		Wetland Hyd	rology Present?	Yes No X
(includes capillary fri				ti) ifi	lable:		
Describe Recorded	Data (stream gauge	, monitoring well,	aerial photos, previous ir	ispections), if avai	able:		
Remarks:							

Sampling Point:

WC-023-DP2

SOIL Sampling Point: WC-023-DP2

C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils <sup>2</sup> :  Card Muck (A10) (LRR K, L, MLRA 149B)  Coast Prainie Redux (A16) (LRR K, L, R)  Loamy Mucky Mineral (F1) (LRR K, L)  Dark Surface (S7) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Thin Dark Surface (S8) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, R)  Thin Dark Surface (S8) (LRR K, L, R)  Thin Dark Surface (S8) (LRR K, L, R)  Thin Dark Surface (S9) (LRR K, L, R)  Th	s) Matrix Color (moist)	%	Color (moist)	Redox Featu %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
Co-Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Soil indicators: Indicators for Problematic Hydric Soils <sup>2</sup> : Istosol (A1) Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils <sup>2</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Isto Epipedon (A2) MILRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Isto Epipedon Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Istofied Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR R, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L, M) Istofied Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Polyvalue Below (MLRA 144A, 145, 149B) Andly Mucky Mineral (S1) Andly Mucky Mineral (S2) Andly Mucky Mineral (S2					71					
C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Soil Indicators: listosci (A1)	1011/ 3+/2	100 /6					JOL			
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue				. ——				Rocky roadside	fill.	
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue				· ——						
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
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Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Isistosol (A1)  Polyvalue Below Surface (S8) (LRR R, Isistic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Dark Surface (S7) (LRR K, L)  Inih Dark Surface (A11)  Depleted Matrix (F2)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Dark Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S7) (LRR K, L, M)  Polyvalue Below Surface (S8) (LRR K, L)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Matrix (S4)  Redox Dark Surface (F6)  Inon-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Indicators for Problematic Hydric Soil Present?  Polyvalue Below (A16) (LRR K, L, R)  Polyvalue Belox (A16) (LRR K, L, R)  Polyvalue Belox Surface (S9) (LRR K, L)  Polyvalue Belox (S6) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, M)  Polyvalue Belox Surface (S9) (LRR K, L, R)  Polyvalue										
listosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Listic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Alack Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Alack Histic (A3) Loamy Mucky Mineral (F1) (LRR K, L) Alack Histic (A4) Loamy Mucky Mineral (F1) (LRR K, L) Alack Histic (A3) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S7) (LRR K, L, M) Alack Histic (A4) Loamy Mucky Mineral (F1) (LRR K, L) Alack Histic (A3) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L, M) Alack Histic (A3) Polyvalue Below Surface (S9) (LRR K, L, R) Alack Histic (A3) Dark Surface (A11) Alack Histic (A3) Dark Surface (S7) (LRR K, L, M) Alack Histic (A3) Dark Surface (A5) Thin Dark Surface (S9) (LRR K, L) Alack Histic (A3) Thin Dark Surface (S9) (LRR K, L) Alack Histic (A3) Thin Dark Surface (S9) (LRR K, L) Alack Histic (A3) Thin Dark Surface (S9) (LRR K, L, R) Alack Histic (A3) Thin Dark Surface (S9) (LRR K, L) Alack Histic (A		on, RM=Red	uced Matrix, MS=Ma	asked Sand	Grains. <sup>2</sup> Loc	ation: PL=F				
MILRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A3) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Depleted Matrix (F3) Depleted Matrix (F3) Depleted Dark Surface (A12) Depleted Dark Surface (F6) Depleted Dark Surface (A12) Depleted Dark Surface (F7) Depleted Matrix (S4) Depleted Dark Surface (F7) Depleted Matrix (S4) Depleted Dark Surface (F7) Depleted Dark Surface (F8) Depleted Dark Surface (F9) Dark S	Soil Indicators:		Polyvalue Belo	w Surface (S	8) <b>(LRR R</b> .					
Algorogen Sulfide (A4)  Loamy Mucky Mineral (F1) (LRR K, L)  Algorithm Surface (A5)  Loamy Gleyed Matrix (F2)  Depleted Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Analyd Gleyed Matrix (S4)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Total Control of Present (F7)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Thin Dark Surface (S9) (LRR K, L)  Thin Dark Surface	Histic Epipedon (A2)				o, <b>(=</b> ,					
tratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Surface (S9) (LRR K, L) Pichoral Marganese Masses (F12) (LRR K, L) Pichoral Margan	Black Histic (A3)			. , .		149B)				R)
Pepleted Below Dark Surface (A11)  Depleted Matrix (F3)  Finick Dark Surface (A12)  Redox Dark Surface (F6)  Finandy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Finandy Mucky Mineral (S1)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Finandy Redox (S5)  Finandy Redox (S5)  Finin Dark Surface (S9) (LRR K, L)  Finon-Manganese Masses (F12) (LRR K, L, R)  Finandy Redox (F7)  Finandy Redox (S4)  Finandy Redox (S5)  Finandy Redox (S5)  Finin Dark Surface (S9) (LRR K, L)  Finandy Redox (F12) (LRR K, L, R)  Finin Dark Surface (S9) (LRR K, L)  Finin Dark Surface (S9) (LRR K, L)  Finandy Redox (F12) (LRR K, L, R)  Finin Dark Surface (S9) (LRR K, L)  Finandy Redox (F5)  Finin Dark Surface (S9) (LRR K, L)  Finin Dark Surface (S9) (LRe K, L)  Finin Dark Surface (F7)  Finin Da	· -	_			LKK K, L)					
Analy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Analy Gleyed Matrix (S4)  Analy Redox Depressions (F8)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Analy Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Analy Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Analy Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Analy Redox (191)  Ana		(A11)								
Redox Depressions (F8)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Rotors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Retive Layer (if observed):  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Other (Explain in Remarks)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Redox 1444, 145, 149B)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Retive Layer (if observed):  Retive Layer (if observed):  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)	Thick Dark Surface (A12)	_	Redox Dark Su	rface (F6)				-		-
Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Rocky fill layer, unable to dig beyond. Mixed with concrete.  Pepth (inches):  12 Hydric Soil Present? Yes No	Sandy Mucky Mineral (S1)	_								
tripped Matrix (S6) Park Surface (S7) (LRR R, LRR M, MLRA 149B)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Petive Layer (if observed):  Type: Rocky fill layer, unable to dig beyond. Mixed with concrete.  Peth (inches):  Hydric Soil Present? Yes No		_	Redox Depress	sions (F8)						98)
tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Rocky fill layer, unable to dig beyond. Mixed with concrete.  bepth (inches): 12 Hydric Soil Present? Yes No								,	,	
ctive Layer (if observed):  ype: Rocky fill layer, unable to dig beyond. Mixed with concrete.  pepth (inches): 12 Hydric Soil Present? Yes No		RR M, MLRA	149B)							
ctive Layer (if observed):  ype: Rocky fill layer, unable to dig beyond. Mixed with concrete.  pepth (inches): 12 Hydric Soil Present? Yes No	ators of hydrophytic vegetation	n and wetland	d hydrology must be	present, un	less disturbe	d or proble	matic.			
Depth (inches): 12 Hydric Soil Present? Yes No x	ctive Layer (if observed):			•						
Depth (inches): 12 Hydric Soil Present? Yes No x	Γγρe: Rocky fill layer, unable	to dig beyon	d. Mixed with concr	ete.						
	Depth (inches):	<u> </u>				Hydric So	oil Present?	Yes	No	x
	rks:			<u> </u>		-		<u> </u>		

### WETLAND DETERMINATION DATA FORM -- Northcentral and Northeast Region

Project/Site:	I-275		Cit	y/County: Canto	n / Wayne County	Sampling Date: 7.24.2012
Applicant/Owner:	Michigan Department	of Transportation			State: MI	Sampling Point: WC-030-DP1
Investigator(s):	R. Roos, S. Kogge			Section, To	wnship, Range: T8E, R2S, S1	2
Landform (hillslope, to	errace, etc.): ditch			L	ocal relief (concave, convex, n	ione): concave
Slope (%):	0% Lat:	42 19'02.	.67" Lone	g:	83 26'33.11"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie fine sand	dy loam			NWI	classification: none
Are climatic / hydrolog	gic conditions on the site	typical for this time	e of year?	Yes	No x (If no, explain in Re	emarks.)
Are Vegetation	y , Soil n	, or Hydrology	n significantly disturb	ped? A	re "Normal Circumstances" pre	esent? Yes No x
Are Vegetation	n , Soil n	, or Hydrology	n naturally problema	tic? (If	f needed, explain any answers	in Remarks.)
SUMMARY OF	FINDINGS Attacl	n site map sh	owing sampling po	oint locations	s, transects, important	features, etc.
Hydrophytic Vegetat	tion Present?	Yes x	No	Is the Sample	ed Area	
Hydric Soil Present?		Yes x	No No	within a Wetl		sx No
Wetland Hydrology I	Present?	Yes x	No		l Wetland Site ID: WC-	
Remarks: (Expla	ain alternative procedures	s here or in a sep	arate report.)			
, ,	periencing a severe drou		. ,	17, 2012		
HYDROLOGY						
					0 1 1 1 1	
Wetland Hydrology		adı abaalı all that	annlu)			ers (minimum of two required)
Surface Water	minimum of one is require		арріу) Water-Stained Leaves (Е	39)	x Surface Soil C x Drainage Patt	
High Water Tal	` '		Aquatic Fauna (B13)	33)	Moss Trim Lin	
x Saturation (A3)			Marl Deposits (B15)			Vater Table (C2)
Water Marks (E	•		Hydrogen Sulfide Odor (	C1)	x Crayfish Burro	
Sediment Depo	osits (B2)		Oxidized Rhizospheres of	n Living Roots (	C3) Saturation Vis	sible on Aerial Imagery (C9)
Drift Deposits (	B3)	!	Presence of Reduced Iro	on (C4)	Stunted or Str	ressed Plants (D1)
x Algal Mat or Cr	rust (B4)	!	Recent Iron Reduction in	Tilled Soils (C6)	x Geomorphic F	Position (D2)
Iron Deposits (	•		Thin Muck Surface (C7)		Shallow Aquita	
	ible on Aerial Imagery (B7		Other (Explain in Remark	(s)	Microtopograp	
Sparsely Vege	tated Concave Surface (	38)			FAC-Neutral 1	est (D5)
Field Observations						
Surface Water Pres		No x				
Water Table Presen		No x	Depth (inches):		(-1)	V N-
Saturation Present?		No	Depth (inches):	12W	etland Hydrology Present?	Yes x No
(includes capillary fri	Data (stream gauge, mo	nitoring well, aeris	al photos, previous inspe	ctions), if availab	le:	
	( 99-,			,,		
Remarks:						

Sampling Point:

WC-030-DP1

SOIL Sampling Point: WC-030-DP1

	ription: (Describe to t	he depth r				m the abse	ence of indicato	ors.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Featur	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 2/2	100%					Silty Loam	lots of decomposing plant material
4-12	10YR 2/1	30%	10YR 6/6	20%	С	M	Clay Loam	
	10YR 4/2	50%					Clay Loam	
12-22	10YR 5/1	80%	7.5YR 5/8	5%	С	М	Clay Loam	
			10YR 6/6	15%	С	М	Clay Loam	
				-				
			-					
			-					
<sup>1</sup> Type: C=Cor Hydric Soil I	ncentration, D=Depletion	on, RM=Re	duced Matrix, MS=M	asked Sand (	Grains. <sup>2</sup> Loc	cation: PL=		Matrix.  Problematic Hydric Soils <sup>3</sup> :
Histoso		_	Polyvalue Belo	w Surface (S	8) <b>(LRR R,</b>			luck (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)	_	MLRA 149B	•		4.400\		Prairie Redox (A16) (LRR K, L, R)
	listic (A3) en Sulfide (A4)	-	Thin Dark Surface Loamy Mucky			149B)		lucky Peat or Peat (S3) (LRR K, L, R) urface (S7) (LRR K, L, M)
	d Layers (A5)	-	Loamy Gleyed		,			lue Below Surface (S8) (LRR K, L)
	ed Below Dark Surface	(A11)	Depleted Matri	. ,				ark Surface (S9) (LRR K, L)
	Park Surface (A12)		Redox Dark Su					anganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1) Gleyed Matrix (S4)	-	Depleted Dark Redox Depres					ont Floodplain Soils (F19) <b>(MLRA 149B)</b> Spodic (TA6) <b>(MLRA 144A, 145, 149B)</b>
	Redox (S5)	-	Redox Deples	SIO115 (F0)				arent Material (F21)
	d Matrix (S6)							hallow Dark Surface (TF12)
Dark St	urface (S7) (LRR R, LF	RR M, MLR	A 149B)				Other (	Explain in Remarks)
<sup>3</sup> Indicators of	hydrophytic vegetation	n and wetla	nd hydrology must be	e present, unl	ess disturbe	ed or proble	ematic.	
Restrictive L	ayer (if observed):							
Type:	None observed							
Depth (	inches):					Hydric S	oil Present?	Yes x No
Remarks:								

### WETLAND DETERMINATION DATA FORM -- Northcentral and Northeast Region

Project/Site:	I-275			City/County: Car	nton / Wayne Cou	inty	Sampling Date: 7.24.2012
Applicant/Owner:	Michigan Depa	rtment of Transporta	tion			State: MI	Sampling Point: WC-030-DP2
Investigator(s):	R. Roos, S. Ko	gge		Section,	Township, Range	e: T8E, R2S, S12	
Landform (hillslope, te	errace, etc.):	slope down to ditch			Local relief (cor	ncave, convex, none):	slope
Slope (%):	5% Lat:	42 19	9'02.03"	Long:	83 26'33.	04"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie f	ine sandy loam				NWI classi	ification: none
Are climatic / hydrolog	jic conditions on t	the site typical for this	time of year?	Yes	No_x_(If	no, explain in Remark	·s.)
Are Vegetation	y , Soil	y , or Hydrolog	y n significantly	disturbed?	Are "Normal Circ	cumstances" present?	Yes No x
Are Vegetation	n , Soil	n , or Hydrolog	y n naturally prol	olematic?	(If needed, expla	ain any answers in Rer	marks.)
SUMMARY OF	FINDINGS	Attach site map	showing sampling	ng point location	ons, transects	s, important featu	ıres, etc.
Hydrophytic Vegetat	ion Present?	Yes	No x	Is the Sam	pled Area		
Hydric Soil Present?		Yes	No x	within a W	etland?	Yes	No x
Wetland Hydrology F	Present?	Yes	No x	If yes, option	onal Wetland Site	ID:	
Remarks: (Expla	ain alternative pro	cedures here or in a	separate report.)				
We are currently exp	periencing a seve	re drought for this are	ea according to NOAA	- July 17, 2012			
HYDROLOGY							
Wetland Hydrology					Sec		nimum of two required)
		s required; check all t				Surface Soil Cracks	, ,
Surface Water	` ,		Water-Stained Lea	` '		Drainage Patterns (I	
High Water Tab			Aquatic Fauna (B1:			Moss Trim Lines (B1	
Saturation (A3) Water Marks (E			Marl Deposits (B15 Hydrogen Sulfide C			Dry-Season Water T Crayfish Burrows (C	` '
Sediment Depo	,			eres on Living Root	s (C3)	_ '	n Aerial Imagery (C9)
Drift Deposits (I			Presence of Reduc	-		Stunted or Stressed	= : : :
Algal Mat or Cru				tion in Tilled Soils (0	C6)	Geomorphic Position	, ,
Iron Deposits (E		-	Thin Muck Surface	,		Shallow Aquitard (D	
	ble on Aerial Ima	gery (B7)	Other (Explain in R	, ,		Microtopograpic Rel	
Sparsely Veget	tated Concave Si	urface (B8)				FAC-Neutral Test (D	05)
Field Observations	:						
Surface Water Prese	ent? Yes	s No	x Depth (inches):				
Water Table Present	t? Yes	No No	x Depth (inches):				
Saturation Present?	Yes	. No	x Depth (inches):		Wetland Hydrol	ogy Present?	Yes No X
(includes capillary fri	0 /				L		
Describe Recorded I	Data (stream gau	ige, monitoring well, a	aerial photos, previous	inspections), if avai	lable:		
Remarks:							

WC-030-DP2

SOIL Sampling Point: WC-030-DP2

Profile Descri	iption: (Describe to th	ne depth r	needed to documer			m the abse	ence of indicato	rs.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Feature	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 3/2	98%	10YR 4/4	2%	C	M	Silty Loam	No topsoil
								Disturbed soil profile from past
								construction/maintenance
1 <sub>Type:</sub> C. Cen	centration, D=Depletio		duced Metrix MC A	Applied Sand C	roine 2l o	action: DI	Doro Lining M.A	Actric
Hydric Soil In	· · · · · · · · · · · · · · · · · · ·	n, Rivi=Re	duced Matrix, MS=N	nasked Sand G	rains. Lo	zation: PL=		Problematic Hydric Soils <sup>3</sup> :
Histosol		-		ow Surface (S8	3) <b>(LRR R,</b>			luck (A10) (LRR K, L, MLRA 149B)
Black His	stic (A3)	_	MLRA 149E Thin Dark Sur	face (S9) <b>(LRR</b>	R, MLRA	149B)		Prairie Redox (A16) <b>(LRR K, L, R)</b> lucky Peat or Peat (S3) <b>(LRR K, L, R)</b>
	n Sulfide (A4)	-		Mineral (F1) (L	_RR K, L)			urface (S7) (LRR K, L, M)
	l Layers (A5) I Below Dark Surface (	(A11)	Loamy Gleyed Depleted Matr					ue Below Surface (S8) (LRR K, L) ark Surface (S9) (LRR K, L)
	irk Surface (A12)	· -	Redox Dark S	Surface (F6)				anganese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1) leyed Matrix (S4)	-	Depleted Dark Redox Depres					ont Floodplain Soils (F19) <b>(MLRA 149B)</b> Spodic (TA6) <b>(MLRA 144A, 145, 149B)</b>
	edox (S5)	-	Redox Depres	3310113 (1 0)				rent Material (F21)
	Matrix (S6)	D M M D	A 4 40 D)					nallow Dark Surface (TF12)
Dark Sui	rface (S7) (LRR R, LR	R M, MLR	А 149В)				Other (I	Explain in Remarks)
<sup>3</sup> Indicators of h	nydrophytic vegetation	and wetla	nd hydrology must b	e present, unle	ess disturbe	d or proble	matic.	
Restrictive La	yer (if observed):							
Type: C	compacted rocky fill							
Depth (ir	nches):			4		Hydric Sc	oil Present?	Yes No <u>x</u>
Remarks:								

### WETLAND DETERMINATION DATA FORM -- Northcentral and Northeast Region

Project/Site:	I-275		City	/County: Wayn	e County	Sampling Date: 7.9.2012
Applicant/Owner:	Michigan Department	of Transportation			State: MI	Sampling Point: WC-036-DP1
Investigator(s):	J. Heslinga, R. Roos			Section, To	ownship, Range: T8E, R2S, S12	
Landform (hillslope, te	errace, etc.): roadsi	de ditch			ocal relief (concave, convex, none	): concave
Slope (%):	5% Lat:	42 18'28.67	" Long	j:	83 26'31.70"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie Fine Sar	ndy Loam			NWI clas	ssification: None
Are climatic / hydrolog	gic conditions on the site	typical for this time o	f year?	Yes	No x (If no, explain in Rema	rks.)
Are Vegetation	n , Soil y	, or Hydrologyn	significantly disturb	ed? A	re "Normal Circumstances" presen	t? Yes No x
Are Vegetation	n, Soil n	, or Hydrologyn	naturally problemat	ic? (li	f needed, explain any answers in R	emarks.)
SUMMARY OF	FINDINGS Attach	າ site map shov	ving sampling po	int location	s, transects, important fea	tures, etc.
Hydrophytic Vegetat	ion Present?	Yes x	No	Is the Sample	ed Area	
Hydric Soil Present?		Yes x	No	within a Wetl		x No
Wetland Hydrology F	Present?	Yes x	No	If yes, optiona	al Wetland Site ID: WC-036	
Remarks: (Expla	ain alternative procedures	s here or in a separa	te report.)			
The average rainfall	this year has been lower	than normal. Accor	ding to NOAA, 2012 h	as been an abn	ormally dry year in this part of the s	tate.
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondary Indicators (r	ninimum of two required)
	minimum of one is require	ed; check all that app	oly)		Surface Soil Crack	
Surface Water	(A1)	Wa	ter-Stained Leaves (B	9)	Drainage Patterns	(B10)
High Water Tal			uatic Fauna (B13)		Moss Trim Lines (	
Saturation (A3)			rl Deposits (B15)		Dry-Season Wate	, ,
Water Marks (E	*		drogen Sulfide Odor (C		Crayfish Burrows	• •
Sediment Depo Drift Deposits (			dized Rhizospheres of esence of Reduced Iro		Stunted or Stress	on Aerial Imagery (C9)
Algal Mat or Cr	,		cent Iron Reduction in			, ,
Iron Deposits (I			n Muck Surface (C7)	111100 00110 (00)	Shallow Aquitard	
· ·	ble on Aerial Imagery (B7		ner (Explain in Remark	s)	Microtopograpic R	
Sparsely Veget	tated Concave Surface (I	· —		•	x FAC-Neutral Test	
Field Observations	:			Ι		
Surface Water Prese	ent? Yes	No x D	epth (inches):			
Water Table Presen	t? Yes	No x D	epth (inches):			
Saturation Present?	Yes	No <u>x</u> D	epth (inches):	w	letland Hydrology Present?	Yes x No
(includes capillary fri	<u> </u>	aitarian wall aarial a	h - t	tions) if availab	la.	
Describe Recorded	Data (stream gauge, mo	nitoring well, aerial p	notos, previous inspec	tions), if availab	ile:	
Remarks:						
Location is betw	een bikepath and hi	ghway.				

Sampling Point:

WC-036-DP1

SOIL Sampling Point: WC-036-DP1

Profile Descr	iption: (Describe to t	he depth r				n the abse	ence of indicato	ors.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Feature	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-5	10YR 2/2	95%	10YR 4/4	5%	C	PL	SCL	SCL = Sandy Clay Loam
5-10	2.5Y 4+/3	75%	10YR 4/2	20%	С	M	Sandy Clay	
			10YR 4/4	5%	C	M		Distinct Redox
•								
							-	
1=	B. Bankii		durad Matrix, MO, M		21		Daniel Salam M. N.	Market.
Hydric Soil In	ncentration, D=Depletion	n, RM=Re	duced Matrix, MS=M	lasked Sand G	rains. Loc	ation: PL=I		Matrix.  Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)			ow Surface (S8	) (LRR R,			luck (A10) (LRR K, L, MLRA 149B)
	oipedon (A2) istic (A3)		MLRA 149B Thin Dark Surfa		R, MLRA	149B)		Prairie Redox (A16) (LRR K, L, R) lucky Peat or Peat (S3) (LRR K, L, R)
Hydroge	en Sulfide (A4)		Loamy Mucky	Mineral (F1) (L		,		urface (S7) (LRR K, L, M)
	d Layers (A5) d Below Dark Surface	(A11)	Loamy Gleyed Depleted Matri					lue Below Surface (S8) (LRR K, L) ark Surface (S9) (LRR K, L)
	ark Surface (A12)	,	x Redox Dark Su				Iron-Ma	anganese Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1) Bleyed Matrix (S4)		Depleted Dark Redox Depres					ont Floodplain Soils (F19) <b>(MLRA 149B)</b> Spodic (TA6) <b>(MLRA 144A, 145, 149B)</b>
	Redox (S5)	-	Redox Deples	510115 (F0)				arent Material (F21)
	Matrix (S6)		4.4405)					hallow Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, LR	R M, MLR	A 149B)				Other (	Explain in Remarks)
<sup>3</sup> Indicators of	hydrophytic vegetation	and wetla	nd hydrology must be	e present, unle	ss disturbe	d or proble	matic.	
Restrictive La	ayer (if observed):							
Type: C	Compacted gravel fill							
Depth (ii	nches):			10		Hydric So	oil Present?	Yes x No
Remarks:	oed/fill from highway/bi	konath car	estruction					
Solis is distuit	Ded/III ITOTTI TilgTiway/bi	(epatii coi	Struction.					

Project/Site:	I-275			City/County: Wa	yne County		Sampling Date: 7.9.2012
Applicant/Owner:	Michigan Departmen	nt of Transportat	ion			State: MI	Sampling Point: WC-036-DP2
Investigator(s):	J. Heslinga, R. Roos	3		Section,	Township, Rang	e: T8E, R2S, S12	
Landform (hillslope, te	errace, etc.): path	hside burm, hillsl	оре		Local relief (co	ncave, convex, none):	convex
Slope (%):	5% Lat:	42 18	3'28.62"	Long:	83 26'31	.59"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie Fine S	Sandy Loam				NWI class	ification: None
Are climatic / hydrolog	gic conditions on the si	ite typical for this	time of year?	Yes	No <u>x</u> (I	f no, explain in Remark	s.)
Are Vegetation	n , Soil y	, or Hydrolog	y n significantly d	isturbed?	Are "Normal Cir	cumstances" present?	Yes No x
Are Vegetation	n, Soil n	, or Hydrolog	y n naturally prob	lematic?	(If needed, expl	ain any answers in Rer	marks.)
SUMMARY OF	FINDINGS Atta	ch site map	showing samplin	g point location	ns, transect	s, important featu	ıres, etc.
Hydrophytic Vegetat	ion Present?	Yes	c No	Is the Sam	pled Area		
Hydric Soil Present?		Yes	No x	within a W	-	Yes	No x
Wetland Hydrology F	Present?	Yes	No x	If yes, option	nal Wetland Site	ID:	
Remarks: (Expla	ain alternative procedu	res here or in a	separate report.)	•			
Area is having below	v normal rainfalls. Acc	ording to NOAA	, 2012 has been an abr	normally dry year.			
HYDROLOGY							
Wetland Hydrology	Indicators:				Se	condary Indicators (mi	nimum of two required)
	minimum of one is requ	uired; check all the				Surface Soil Cracks	, ,
Surface Water	` '		Water-Stained Leav	, ,		Drainage Patterns (	,
High Water Tab			Aquatic Fauna (B13		_	Moss Trim Lines (B	
Saturation (A3)			Marl Deposits (B15)			Dry-Season Water	
Water Marks (E Sediment Depo	,		Hydrogen Sulfide O Oxidized Rhizosphe	, ,	- (C3)	Crayfish Burrows (C	n Aerial Imagery (C9)
Drift Deposits (I			Presence of Reduc	_		Stunted or Stressed	= : : :
Algal Mat or Cr			Recent Iron Reduct		<del></del>	Geomorphic Positio	
Iron Deposits (I			Thin Muck Surface	,		Shallow Aquitard (D	
Inundation Visil	ble on Aerial Imagery	(B7)	Other (Explain in Re	emarks)	_	Microtopograpic Re	
Sparsely Veget	tated Concave Surface	e (B8)	<del></del>		_	FAC-Neutral Test (D	05)
Field Observations	:						
Surface Water Prese	ent? Yes	No	x Depth (inches):				
Water Table Present	t? Yes	No	x Depth (inches):				
Saturation Present?		No	x Depth (inches):		Wetland Hydro	logy Present?	Yes No X
(includes capillary fri	· ,	monitoring woll (	aerial photos, previous i	nepostions) if avai	able:		
Describe Recorded	Data (stream gauge, r	nonitoring well, a	ieriai priotos, previous i	nspections), ii avai	lable:		
Remarks:							
1							

WC-036-DP2

SOIL Sampling Point: WC-036-DP2

CC-Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Location: PL=Pore Lining, M=Matrix.  CC-Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Location: PL=Pore Lining, M=Matrix.  Soil Indicators:  Indicators for Problematic Hydric Soils*:	C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix.  Soli Indicators: Indicators for Problematic Hydric Soils*: 2 cm Muck (A10) (LRR K, L, MIRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Sof Middle (A4) Loamy Mucky Mineral (F1) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (A71) Depleted Dark Surface (F3) Sandy Mucky Mineral (S3) Thin Dark Surface (S3) (LRR K, L, M) Thick Dark Surface (A12) Redox Dark Surface (F3) Thin Dark Surface (S8) (LRR K, L) Thick Dark Surface (A12) Redox Dark Surface (F3) Sandy Mucky Mineral (S1) Depleted Dark Surface (F3) Sandy Mineral (S1) Depleted Dark Surface (F3) Depleted Dark	s) Color (moist)	%	Color (moist)	edox Featur %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	F	Remarks
C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix.  Soil indicators: listosol (A1)	C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Soil Indicators: Indicators for Problematic Hydric Soils <sup>2</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 1 can MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) 1 can Mucky Mineral (F1) (LRR K, L) 1 canny Mucky Mineral (F1) (LRR K, L) 1 coanny Mucky Mineral (F1) (LRR K, L) 1 coanny Mucky Mineral (F1) (LRR K, L) 1 con-Manganese Masses (F12) (LRR K, L, R) 1 con-Mang	10YR 3/2	100%					Sandy Loam		
C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Soil Indicators: Isitusoid (A1) Polyvalue Below Surface (S8) (LRR R, Isitusoid (A2) MLRA 1498) Coast Prairie Redox (A10) (LRR K, L, MLRA 149B) Alack Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Treditied Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S7) (LRR K, L, R) Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Treditied Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L) Trini Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L)	C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Soil indicators: istosol (A1)								Rocky Fill	
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)								TOOKY I III	
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Istosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Istic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Som Mucky Peat or Peat (S3) (LRR K, L, R)  John Dark Surface (S7) (LRR K, L, M)  Vertratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Andy Mucky Mineral (S1)  Depleted Dark Surface (F6)  Iron-Manganese Masses (F12) (LRR K, L, R)  Andy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149B)  andy Gleyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  andy Redox (S5)  tripped Matrix (S6)  Ark Surface (S7) (LRR R, LRR M, MLRA 149B)  Ark Surface (S7) (LRR R, LRR M, MLRA 149B)  Are Surface (S9) (LRR K, L)  Ar	Soil Indicators:  Indicators for Problematic Hydric Soils 3:  Istosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Istic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  Istosol (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR K, L)  Identified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L)  Inic Dark Surface (S7) (LRR K, L, M)  Inic Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Indicators for Problematic Hydric Soils 3:  Indicators for Problematic Hydric Soils 4:  Indicators for Muck (A10) (LRR K, L, M)  Coast Prairie Redox (A16) (LRR K, L, R)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Problematic Pydric Fill Explain in Redox (A16) (LRR K, L, MLRA 149B)  Indicators for Problematic Hydric Soil Present? Yes No  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, R)  Indicat									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)	<del></del>								
Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Istosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Istic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  John Dark Surface (S9) (LRR R, MLRA 149B)  Som Mucky Peat or Peat (S3) (LRR K, L, R)  John Dark Surface (S7) (LRR K, L, M)  Vertratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Andy Mucky Mineral (S1)  Depleted Dark Surface (F6)  Iron-Manganese Masses (F12) (LRR K, L, R)  Andy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149B)  andy Gleyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  andy Redox (S5)  tripped Matrix (S6)  Ark Surface (S7) (LRR R, LRR M, MLRA 149B)  Ark Surface (S7) (LRR R, LRR M, MLRA 149B)  Are Surface (S9) (LRR K, L)  Ar	Soil Indicators:  Indicators for Problematic Hydric Soils 3:  Istosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Istic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  Istosol (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR K, L)  Identified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L)  Inic Dark Surface (S7) (LRR K, L, M)  Inic Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Indicators for Problematic Hydric Soils 3:  Indicators for Problematic Hydric Soils 4:  Indicators for Muck (A10) (LRR K, L, M)  Coast Prairie Redox (A16) (LRR K, L, R)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Problematic Pydric Fill Explain in Redox (A16) (LRR K, L, MLRA 149B)  Indicators for Problematic Hydric Soil Present? Yes No  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, MLRA 149B)  Indicators for Muck (A10) (LRR K, L, R)  Indicat									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
Soil Indicators: istosol (A1)	Soil Indicators: istosol (A1)									
listosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) listic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) lack Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) S cm Mucky Peat or Peat (S3) (LRR K, L, R) lydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) tratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) hick Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Red Parent Material (F21) Very Shallow Dark Surface (TF12) ltripped Matrix (S6) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Lors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Stive Layer (if observed):  Lepth (inches):  12 Hydric Soil Present? Yes No	listosol (A1)	C=Concentration, D=Depletio	n, RM=Redu	ced Matrix, MS=Ma	sked Sand G	rains. <sup>2</sup> Loc	ation: PL=	Pore Lining, M=N	Natrix.	
istic Epipedon (A2) In MLRA 149B) Istic Epipedon (A2) In In Dark Surface (S9) (LRR R, MLRA 149B) Istic (A3) In In Dark Surface (S9) (LRR R, MLRA 149B) Istic (A3) In In Dark Surface (S9) (LRR R, MLRA 149B) Istic (A3) In In Dark Surface (S9) (LRR K, L, R) Istic Layers (A5) Istic Layers (A11) Istic Layers (A12) Istic Layers (A12) Istic Layers (A12) Istic Layers (A12) Istic Layers (A13) Istic Layers (A14) Istic Layers (A14) Istic Layers (A15) Istic Layers (A15) Istic Layers (A15) Istic Layers (A16) Istic Layers (A17) Istic Layers (A18) Istic Layers (A14) Istic Layers (A18) Istic Layers (A14) Istic Layers	istic Epipedon (A2) MICRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) S cm Mucky Peat or Peat (S3) (LRR K, L, R) ydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) tratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) epleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) ark Surface (S7) (LRR R, LRR M, MLRA 149B) Cors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Stive Layer (if observed):  peth (inches):  12 Hydric Soil Present? Yes No			Doharahir Dal	Curta - (C)	) (I BB 5			•	
lack Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Jorgen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Loamy Gleyed Matrix (F2) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) P	Alack Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Joans Surface (S9) (LRR K, L, R)  Thin Dark Surface (S9) (LRR K, L)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Polyvalue Below Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  andy Gleyed Matrix (S4)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Pors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Pother (Explain in Remarks)  Pother (Explain in Remarks)  Pother (Explain in Remarks)  Pother (Explain in Remarks)				Surface (St	) (LRR R,				
tratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) epleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  etive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  epth (inches):  12 Hydric Soil Present? Yes No	tratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L)			,	ce (S9) <b>(LRR</b>	R, MLRA	149B)		, ,	
repleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Etive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.	Thin Dark Surface (S9) (LRR K, L) hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) very Shallow Dark Surface (TF12) ark Surface (S7) (LRR R, LRR M, MLRA 149B)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ettive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.	· -				RR K, L)			. , .	
hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) ark Surface (S7) (LRR R, LRR M, MLRA 149B)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.	hick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) ark Surface (S7) (LRR R, LRR M, MLRA 149B)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  tepth (inches): 12 Hydric Soil Present? Yes No	• • •	(444)							
andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.	andy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) andy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) andy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.	•	(A11)							
andy Redox (S5)  ark Surface (S7) (LRR R, LRR M, MLRA 149B)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  tepth (inches):  12 Hydric Soil Present? Yes No	andy Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Etive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  Pepth (inches):  12 Hydric Soil Present? Yes No								-	
tripped Matrix (S6) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  tepth (inches):  12 Hydric Soil Present? Yes No	tripped Matrix (S6) Perk Surface (S7) (LRR R, LRR M, MLRA 149B)  tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Extive Layer (if observed):  The pert (inches):  Hydric Soil Present?  Yes No	andy Gleyed Matrix (S4)		Redox Depressi	ons (F8)			Mesic S	podic (TA6) (MLR	A 144A, 145, 149B)
cors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Stive Layer (if observed):  The problematic service in the problematic service service service service in the problematic service ser	cors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Stive Layer (if observed):  The problematic service in the problematic service in the present of								, ,	
tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Live Layer (if observed):  Lype: Fill Dirt, from highway and bikepath construction.  Lepth (inches): 12 Hydric Soil Present? Yes No	tors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  epth (inches): 12 Hydric Soil Present? Yes No		R M. MLRA	149B)						
ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  epth (inches): 12 Hydric Soil Present? Yes No	ctive Layer (if observed):  ype: Fill Dirt, from highway and bikepath construction.  epth (inches): 12 Hydric Soil Present? Yes No							·		,
ype: Fill Dirt, from highway and bikepath construction.  lepth (inches): 12 Hydric Soil Present? Yes No	ype: Fill Dirt, from highway and bikepath construction.  lepth (inches): 12 Hydric Soil Present? Yes No	tors of hydrophytic vegetation	and wetland	hydrology must be	present, unle	ess disturbe	d or proble	ematic.		
epth (inches): 12 Hydric Soil Present? Yes No	epth (inches): 12 Hydric Soil Present? Yes No	ctive Layer (if observed):								
		ype: Fill Dirt, from highway a	nd bikepath o	construction.						
		epth (inches):			12		Hvdric S	Soil Present?	Yes	No
		3:								

Project/Site:	I-275		City	//County: Car	nton / Wayne County		Sampling Date: <u>7.16.2012</u>
Applicant/Owner:	Michigan Department	of Transportation			Stat	e: MI	Sampling Point: WC-067-DP1
Investigator(s):	R. Roos, A. Reinhardt	:		Section,	Township, Range: T8E, S	312, R2S	
Landform (hillslope, to	errace, etc.): depre	ssion, ditch along high	iway		Local relief (concave, co	nvex, none):	concave
Slope (%):	0% Lat:	42 19'44.4"	Long	g:	83 26'38.4"		Datum: UTM 16N
Soil Map Unit Name:	Kibbie fine san	dy loam				NWI classi	fication: none
Are climatic / hydrolog	gic conditions on the site	typical for this time of	year?	Yes	No x (If no, expl	ain in Remark	s.)
Are Vegetation	n , Soil y	, or Hydrology n	significantly disturb	ed?	Are "Normal Circumstane	ces" present?	Yes No x
Are Vegetation	n, Soil n	, or Hydrology n	_naturally problema	tic?	(If needed, explain any a	nswers in Ren	narks.)
SUMMARY OF	FINDINGS Attac	h site map show	ing sampling po	oint location	ns, transects, impo	rtant featu	res, etc.
Hydrophytic Vegeta	tion Present?	Yes x 1	No	Is the Sam	pled Area		
Hydric Soil Present?		Yes x	No	within a W		Yes x	. No
Wetland Hydrology	Present?	Yes x	No	If yes, option	nal Wetland Site ID:	WC-067 Di	itch
Remarks: (Expla	ain alternative procedure	s here or in a separate	e report.)	•			
Emergent, highway	ditch along west side of	I-275. Disturbed soil p	rofile along highway	corridor. Uns	easonably low rainfall, dro	ughty conditio	ns.
HYDROLOGY							
Wetland Hydrology	y Indicators:				Secondary	ndicators (min	nimum of two required)
	minimum of one is requir					e Soil Cracks	• •
Surface Water	, ,		er-Stained Leaves (E	39)		ge Patterns (E	•
High Water Ta			atic Fauna (B13)			Trim Lines (B1	,
x Saturation (A3) Water Marks (I	,		Deposits (B15) rogen Sulfide Odor (0	24)		eason Water T sh Burrows (C	
Sediment Dep	*		lized Rhizospheres o	•		,	o) n Aerial Imagery (C9)
Drift Deposits (			sence of Reduced Iro	-		d or Stressed	
Algal Mat or Cr	,		ent Iron Reduction in			orphic Positior	, ,
Iron Deposits (		Thin	Muck Surface (C7)	,		w Aquitard (D3	
Inundation Visi	ible on Aerial Imagery (B	7) Othe	er (Explain in Remark	s)	Microt	opograpic Reli	ief (D4)
x Sparsely Vege	tated Concave Surface (	(B8)			FAC-N	leutral Test (D	5)
Field Observations	3:						
Surface Water Pres	ent? Yes	No <u>x</u> De	pth (inches):				
Water Table Presen			pth (inches):				
Saturation Present?		No De	epth (inches):	12	Wetland Hydrology Pre	sent?	Yes x No
(includes capillary fr	inge) Data (stream gauge, mo	nitoring well aerial ph	otos previous insper	rtions) if avail	able:		
December Recorded	Data (or oarn gaago, mo	moning won, donar priv	otoo, provious mopet	mono, ii avaii	abio.		
Remarks:							
1							

WC-067-DP1

SOIL Sampling Point: WC-067-DP1

Color (moist)	%	Color (moist)	Redox Featu %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
10YR 3/2	100%	<u> </u>				Sandy Loam	
10YR 2/2	80%	10YR 4/6	20%	С	M, PL	Sandy Loam	
2.5YR 5/2	65%	10YR 4/6	35%	С	M	Sand	
Concentration, D=Depletion	on, RM=Re	duced Matrix, MS=Ma	sked Sand	Grains. <sup>2</sup> Lo	cation: PL=	Pore Lining, M=Matrix.	
sol (A1) Epipedon (A2) Histic (A3) ogen Sulfide (A4) fied Layers (A5) eted Below Dark Surface Dark Surface (A12) y Mucky Mineral (S1) y Gleyed Matrix (S4) y Redox (S5) oed Matrix (S6) Surface (S7) (LRR R, LR	RR M, MLRA	•	ce (S9) (LR fineral (F1) ( Matrix (F2) (F3) face (F6) Surface (F7) ions (F8)	R R, MLRA (LRR K, L)		Coast Prairie 5 cm Mucky F Dark Surface Polyvalue Be Thin Dark Su Iron-Mangane Piedmont Flo Mesic Spodic Red Parent M Very Shallow Other (Explai	A10) (LRR K, L, MLRA 149B) Redox (A16) (LRR K, L, R) Peat or Peat (S3) (LRR K, L, R) (S7) (LRR K, L, M) low Surface (S8) (LRR K, L) rface (S9) (LRR K, L) ese Masses (F12) (LRR K, L, R) odplain Soils (F19) (MLRA 149B) (TA6) (MLRA 144A, 145, 149B) Material (F21) Dark Surface (TF12) n in Remarks)
Layer (if observed):		, 0,					
None observed							
n (inches):					Hydric S	oil Present? Y	'es x No

Project/Site:	I-275		C	City/County: Can	ton / Wayne County	Sampling Date: 7.16.2012
Applicant/Owner:	Michigan Depart	tment of Transportat	tion		State: MI	Sampling Point: WC-67-DP2
Investigator(s):	R. Roos, A. Reir	nhardt		Section, 7	Township, Range: T8E, S12, R2S	
Landform (hillslope, te	errace, etc.):	hillslope, roadside b	erm along highway ditch		Local relief (concave, convex, nor	ne): convex
Slope (%):	5% Lat:	42 19	9'44.4" Lo	ng:	83 26'38.4"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie fir	ne sandy loam			NWI cl	assification: none
Are climatic / hydrolog	jic conditions on th	e site typical for this	time of year?	Yes	No x (If no, explain in Ren	narks.)
Are Vegetation	y , Soil	y , or Hydrolog	y <u>n</u> significantly distu	ırbed?	Are "Normal Circumstances" prese	ent? Yes No x
Are Vegetation	n, Soil	n , or Hydrolog	y n naturally problem	natic?	(If needed, explain any answers in	Remarks.)
SUMMARY OF	FINDINGS A	ttach site map	showing sampling	point location	ns, transects, important fe	atures, etc.
Hydrophytic Vegetat	ion Present?	Yes	No x	Is the Samp	oled Area	
Hydric Soil Present?		Yes	No x	within a We		No x
Wetland Hydrology F	resent?	Yes	No x		nal Wetland Site ID:	
Remarks: (Expla	ain alternative proc	edures here or in a	separate report.)	•		
	-	de of I-275. Disturbe	ed soil profile and mowed v	egetation along	highway corridor. Unseasonably lo	w rainfall, droughty conditions
according to NOAA.						
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondary Indicators	(minimum of two required)
Primary Indicators (n	ninimum of one is	required; check all t	hat apply)		Surface Soil Cra	icks (B6)
Surface Water	(A1)		Water-Stained Leaves	(B9)	Drainage Patter	ns (B10)
High Water Tab			Aquatic Fauna (B13)		Moss Trim Lines	
Saturation (A3)			Marl Deposits (B15)		Dry-Season Wa	
Water Marks (E	,		Hydrogen Sulfide Odor	. ,	Crayfish Burrow	, ,
Sediment Depo			Oxidized Rhizospheres	_		le on Aerial Imagery (C9)
Drift Deposits (I Algal Mat or Cri	,		Presence of Reduced I Recent Iron Reduction	. ,	Stunted or Stres  Geomorphic Po	, ,
Iron Deposits (I			Thin Muck Surface (C7	,	Shallow Aquitare	
· · ·	ble on Aerial Imag	ery (B7)	Other (Explain in Rema	•	Microtopograpic	
Sparsely Veget	tated Concave Su	face (B8)		•	FAC-Neutral Te	
Field Observations	:					
Surface Water Prese	ent? Yes	No	x Depth (inches):			
Water Table Present	t? Yes	No	x Depth (inches):			
Saturation Present?	Yes	No	x Depth (inches):		Wetland Hydrology Present?	Yes No X
(includes capillary fri						
Describe Recorded	Data (stream gaug	je, monitoring well, a	aerial photos, previous insp	ections), if availa	ible:	
Remarks:						
1						

WC-67-DP2

SOIL Sampling Point: WC-67-DP2

Profile Descr	iption: (Describe to t	he depth r	needed to documer	nt the indicato	r or confir	n the abse	nce of indicator	rs.)		
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Feature	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
0-12	10YR 5/4	95%	10YR 5/6	5%	C	M	Loam	Faint Redox		
12+	Rocky Fill							Road-side Fill		
								-		
•								-		
								-		
			-							
1										
'Type: C=Con Hydric Soil In	centration, D=Depletion	n, RM=Re	duced Matrix, MS=N	lasked Sand G	rains. Loc	ation: PL=F		Matrix.  Problematic Hyd	tric Soils <sup>3</sup> :	
Histosol	(A1)	-		ow Surface (S8	3) (LRR R,		2 cm M	uck (A10) <b>(LRR K</b>	(, L, MLRA 149B)	
	pipedon (A2) stic (A3)		MLRA 149E Thin Dark Surf	<b>B)</b> face (S9) <b>(LRR</b>	R, MLRA	149B)		Prairie Redox (A16 ucky Peat or Peat	6) (LRR K, L, R) t (S3) (LRR K, L, R)	
Hydroge	en Sulfide (A4)	-	Loamy Mucky	Mineral (F1) (L		,	Dark Su	urface (S7) (LRR I	K, L, M)	
	d Layers (A5) d Below Dark Surface	(A11)	Loamy Gleyed Depleted Matr					ue Below Surface irk Surface (S9) <b>(L</b>		
Thick Da	ark Surface (A12)	` ′ <del>-</del>	Redox Dark S	Surface (F6)			Iron-Ma	nganese Masses	(F12) <b>(LRR K, L, R</b>	
	Mucky Mineral (S1) Bleyed Matrix (S4)	-	Depleted Dark Redox Depres						s (F19) <b>(MLRA 149</b> 6 <b>RA 144A, 145, 149B</b>	-
Sandy R	Redox (S5)	-		( -,			Red Pa	rent Material (F21	)	•
	l Matrix (S6) rface (S7) <b>(LRR R, LR</b>	R M. MLR	A 149B)					nallow Dark Surfac Explain in Remark		
								=xp.a	,	
	hydrophytic vegetation	and wetlar	nd hydrology must b	e present, unle	ss disturbe	d or probler	matic.			
	ayer (if observed):									
Type: C	Compacted roadside ro	cky fill								
Depth (ii	nches):			12		Hydric So	oil Present?	Yes	No	<u>x</u>
Remarks:										

Project/Site:	I-275			City/County: Can	ton / Wayne County		Sampling Date: 7.16.2012
Applicant/Owner:	Michigan Departmen	t of Transportation	n		State	e: MI	Sampling Point: WC-067-DP1
Investigator(s):	R. Roos, A. Reinhard	dt		Section,	Township, Range: T8E, S	12, R2S	
Landform (hillslope, te	errace, etc.): depr	ession			Local relief (concave, con	nvex, none):	concave
Slope (%):	0% Lat:	42 19'	33.6" Lo	ong:	83 26'45.59"		Datum: UTM 16N
Soil Map Unit Name:	Corunna fine	sandy loam				NWI classif	ication: none
Are climatic / hydrolog	gic conditions on the sit	e typical for this t	me of year?	Yes	No x (If no, expla	in in Remarks	s.)
Are Vegetation	n , Soil n	, or Hydrology	n significantly dist	urbed?	Are "Normal Circumstanc	es" present?	Yes No x
Are Vegetation	y , Soil n	, or Hydrology	n naturally probler	matic?	(If needed, explain any an	swers in Rem	narks.)
SUMMARY OF	FINDINGS Attac	ch site map s	howing sampling	point locatio	ns, transects, impo	rtant featu	res, etc.
Hydrophytic Vegetat	ion Present?	Yes x	No	Is the Sam	oled Area		
Hydric Soil Present?		Yes x	No	within a We	etland?	Yes x	No
Wetland Hydrology F	Present?	Yes x	No	If yes, option	nal Wetland Site ID:	WC-067 Sc	crub-Shrub
, ,	ain alternative procedur						
Area is heavily impa	cted by invasive Comn	non Buckthorn (R	hamnus cathartica). Un	seasonably low r	ainfall, droughty conditions	S.	
HYDROLOGY							
HIDROLOGI							
Wetland Hydrology							imum of two required)
	ninimum of one is requ	<u> </u>		(DO)		Soil Cracks	' '
Surface Water High Water Tal	` '	X	Water-Stained Leaves Aquatic Fauna (B13)	s (B9)		ge Patterns (E rim Lines (B1	•
Saturation (A3)			Marl Deposits (B15)			ason Water T	
x Water Marks (E			Hydrogen Sulfide Odo	r (C1)		h Burrows (C8	
Sediment Depo	•		Oxidized Rhizosphere	` '		,	Aerial Imagery (C9)
Drift Deposits (I	B3)		Presence of Reduced	Iron (C4)	Stunted	d or Stressed	Plants (D1)
Algal Mat or Cr	ust (B4)		Recent Iron Reduction	n in Tilled Soils (C	(6) x Geomo	rphic Position	(D2)
Iron Deposits (I	35)		Thin Muck Surface (C	7)	Shallov	Aquitard (D3	3)
	ble on Aerial Imagery (	· —	Other (Explain in Rem	arks)		pograpic Reli	
x_Sparsely Veget	tated Concave Surface	(B8)			FAC-N	eutral Test (D	5)
Field Observations							
Surface Water Prese			x Depth (inches):				
Water Table Present			x Depth (inches):		Matley d Huduala Dua		Vaa v. Na
Saturation Present? (includes capillary fri		No	x Depth (inches):		Wetland Hydrology Pres	ient?	Yes x No
		onitoring well, ae	rial photos, previous ins	pections), if availa	able:		
Remarks:							
remarks.							

WC-067-DP1

SOIL Sampling Point: WC-067-DP1

Color (moist)	%	Color (moist)	%	res Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
10YR 3/1	100%			71		Sandy Loam	
10YR 7/1	70%	10YR 5/6	30%	С	M	SCL	SCL = Silty Clay Loam
	1070	10110 3/0	3070				OCE - Only Oldy Edum
	_						
				_			
C=Concentration, D=Deplet	ion, RM=Re	duced Matrix, MS=N	Masked Sand C	Grains. <sup>2</sup> Loc	ation: PL=	Pore Lining, M=N	Matrix.
istosol (A1) istic Epipedon (A2) lack Histic (A3) ydrogen Sulfide (A4) tratified Layers (A5) epleted Below Dark Surface nick Dark Surface (A12) andy Mucky Mineral (S1) andy Gleyed Matrix (S4) andy Redox (S5) tripped Matrix (S6) ark Surface (S7) (LRR R, L	RR M, MLR	•	difference (S9) (LRF Mineral (F1) (I di Matrix (F2) ix (F3) urface (F6) s Surface (F7) esions (F8)	R R, MLRA		Coast F 5 cm M Dark St Polyval Thin Da Iron-Ma Piedmo Mesic S Red Pa Very Sh Other (I	uck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) ucky Peat or Peat (S3) (LRR K, L, R) urface (S7) (LRR K, L, M) ue Below Surface (S8) (LRR K, L) ark Surface (S9) (LRR K, L) anganese Masses (F12) (LRR K, L, R) ont Floodplain Soils (F19) (MLRA 149B) Spodic (TA6) (MLRA 144A, 145, 149B) arent Material (F21) nallow Dark Surface (TF12) Explain in Remarks)
tive Layer (if observed):							
ype: None observed							
epth (inches):					Hydric S	oil Present?	Yes x No
KS:							

Project/Site:	I-275			City/County: Car	nton / Wayne C	County	Sampling Date: 7.16.2012
Applicant/Owner:	Michigan Depa	rtment of Transporta	ation			State: MI	Sampling Point: WC-067-DP2
Investigator(s):	R. Roos, A. Re	inhardt		Section,	Township, Rai	nge: T8E, S12, R2S	
Landform (hillslope, to	errace, etc.):	hillslope along scru	ıb-shrub edge		Local relief (	concave, convex, none):	convex
Slope (%):	3% Lat	: 42 1	19'33.6"	Long:	83 26'4	15.59"	Datum: UTM 16N
Soil Map Unit Name:	Corunn	a fine sandy loam	_	•		NWI class	ification: none
Are climatic / hydrolog	gic conditions on	the site typical for thi	s time of year?	Yes	No_x	(If no, explain in Remark	·s.)
Are Vegetation	n , Soil	n , or Hydrolo	gy n significantly dis	turbed?	Are "Normal (	Circumstances" present?	Yes No x
Are Vegetation	y , Soil	n , or Hydrolo	gy n naturally proble	ematic?	(If needed, ex	xplain any answers in Rei	marks.)
SUMMARY OF	FINDINGS	Attach site mar	showing sampling	point location	ns, transe	cts, important featu	ıres, etc.
Hydrophytic Vegetat	tion Present?	Yes	x No	Is the Sam	pled Area		
Hydric Soil Present?		Yes	No x	within a W	-	Yes	No x
Wetland Hydrology I	Present?	Yes	No x	If yes, optio	nal Wetland S	ite ID:	
Remarks: (Expla	ain alternative pro	ocedures here or in a	separate report.)				
Area is heavily invad	ded by Common I	Buckthorn (Rhamnu	s cathartica). Unseasona	bly low rainfall, dro	oughty condition	ns according to NOAA.	Vegetation meets dominance
test, but there is no	evidence of hydro	ology or hydric soils.					
HYDROLOGY							
Wetland Hydrology			that and h			Secondary Indicators (mi	
Primary Indicators (r Surface Water		s required; check all	Water-Stained Leave	oc (P0)		Surface Soil Cracks Drainage Patterns (	' '
High Water Tal	` '		Aquatic Fauna (B13)	` '	-	Moss Trim Lines (B	,
Saturation (A3)			Marl Deposits (B15)		-	Dry-Season Water	•
Water Marks (E			Hydrogen Sulfide Od	or (C1)	-	Crayfish Burrows (C	
Sediment Depo	,		Oxidized Rhizospher	, ,	s (C3)		n Aerial Imagery (C9)
Drift Deposits (	B3)	_	Presence of Reduce	d Iron (C4)		Stunted or Stressed	Plants (D1)
Algal Mat or Cr	ust (B4)	_	Recent Iron Reduction	n in Tilled Soils (C	26)	Geomorphic Positio	n (D2)
Iron Deposits (	*	_	Thin Muck Surface (0	27)	_	Shallow Aquitard (D	
	ble on Aerial Imag		Other (Explain in Rer	narks)	_	Microtopograpic Re	
Sparsely Vege	tated Concave Si	urface (B8)			-	FAC-Neutral Test (I	)5)
Field Observations	<i>;</i> :						
Surface Water Pres			x Depth (inches):				
Water Table Presen			x Depth (inches):				
Saturation Present?		No	x Depth (inches):	-	Wetland Hyd	rology Present?	Yes No X
(includes capillary fri		ige monitoring well	aerial photos, previous in	spections) if avail	lahle:		
Describe recorded	Data (Stream gat	ige, monitoring well,	acriai priotos, previous iri	3000110113), 11 avail	abio.		
Remarks:							

WC-067-DP2

SOIL Sampling Point: WC-067-DP2

Profile Descr	iption: (Describe to t	he depth r				n the abse	ence of indicators.)		
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Feature	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-10	10YR 3/2	100%					Silty Loam		
10-20	10YR 3/2	95%	10YR 4/6	5%	С	М	Silty Loam		
<sup>1</sup> Type: C=Con	centration, D=Depletion	on, RM=Re	duced Matrix, MS=M	lasked Sand G	rains. <sup>2</sup> Loc	ation: PL=I	Pore Lining, M=Matrix	ζ.	
Hydric Soil In Histosol			Polyvalue Belo	ow Surface (St	(LRR R.			olematic Hydric Soils <sup>3</sup> : (A10) (LRR K, L, MLRA 1	49B)
Histic Ep	pipedon (A2)	-	MLRA 149B	3)			Coast Prairie	e Redox (A16) (LRR K, L,	R)
Black Hi Hydroge	stic (A3) n Sulfide (A4)	-	Thin Dark Surfa			149B)		Peat or Peat (S3) <b>(LRR F</b> e (S7) <b>(LRR K, L, M)</b>	(, L, R)
Stratified	Layers (A5)	-	Loamy Gleyed	Matrix (F2)	. ,		Polyvalue Be	elow Surface (S8) (LRR K	(, L)
	d Below Dark Surface ark Surface (A12)	(A11) <b>_</b>	Depleted Matri Redox Dark Su					urface (S9) (LRR K, L) nese Masses (F12) (LRR	K, L, R)
	Mucky Mineral (S1)	-	Depleted Dark					oodplain Soils (F19) (MLF	-
	Bleyed Matrix (S4) Redox (S5)	-	Redox Depres	sions (F8)				ic (TA6) <b>(MLRA 144A, 145</b> Material (F21)	o, 149B)
	Matrix (S6)		A 4 40D)					w Dark Surface (TF12)	
Dark Su	rface (S7) (LRR R, LR	K W, WLK	A 149B)				Other (Expla	ain in Remarks)	
<sup>3</sup> Indicators of	hydrophytic vegetation	and wetlar	nd hydrology must be	e present, unle	ess disturbe	d or proble	matic.		
Restrictive La	ayer (if observed):								
Type: N	lone observed								
Depth (ii	nches):					Hydric So	oil Present?	Yes No	<u>x</u>
Remarks:									

Project/Site:	I-275		(	City/County: Canton /	Wayne County	Sampling Date: 7.23.2012
Applicant/Owner:	Michigan Department	of Transportation	on		State: MI	Sampling Point: WC-074-DP1
Investigator(s):	R. Roos, S. Kogge			Section, Town	nship, Range: T8E, R2S, S12	
Landform (hillslope, te	errace, etc.): depre	ession		Loc	cal relief (concave, convex, none)	: concave
Slope (%):	0% Lat:	42 195	38.14" Lo	ong:	83 26'40.26"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie fine sar	ndy loam	_		NWI clas	sification: none
Are climatic / hydrolog	gic conditions on the site	typical for this	time of year?	Yes N	o x (If no, explain in Rema	rks.)
Are Vegetation	n , Soil n	, or Hydrology	n significantly dist	urbed? Are	"Normal Circumstances" present	? Yes No x
Are Vegetation	n , Soil n	, or Hydrology	n naturally probler	natic? (If ne	eeded, explain any answers in Re	emarks.)
SUMMARY OF	FINDINGS Attac	– ch site map :	showing sampling	point locations,	transects, important feat	tures, etc.
Hydrophytic Vegetat	ion Present?	Yes x	No	Is the Sampled	Δrea	
Hydric Soil Present?		Yes x		within a Wetlan		x No
Wetland Hydrology F	Present?	Yes x		If yes, optional W		
Remarks: (Expla	ain alternative procedure	es here or in a s	eparate report.)			
			a according to NOAA - Ju	lly 17, 2012		
HYDROLOGY						
IIIDROLOGI						
Wetland Hydrology						ninimum of two required)
	ninimum of one is requi			(Da)	x Surface Soil Crack	,
Surface Water	* *	X	Water-Stained Leaves Aquatic Fauna (B13)	(B9)	Drainage Patterns	, ,
High Water Tall Saturation (A3)	` '		Marl Deposits (B15)		Moss Trim Lines (I Dry-Season Water	
x Water Marks (E		-	Hydrogen Sulfide Odo	r (C1)	Crayfish Burrows (	
Sediment Depo	*		Oxidized Rhizosphere			on Aerial Imagery (C9)
Drift Deposits (			Presence of Reduced		x Stunted or Stresse	=
Algal Mat or Cr			Recent Iron Reduction		x Geomorphic Positi	
Iron Deposits (I	35)		Thin Muck Surface (C	7)	Shallow Aquitard (	D3)
Inundation Visit	ble on Aerial Imagery (E	37)	Other (Explain in Rem	arks)	x Microtopograpic R	elief (D4)
Sparsely Veget	tated Concave Surface	(B8)			FAC-Neutral Test	(D5)
Field Observations	:					
Surface Water Prese	ent? Yes	No	x Depth (inches):			
Water Table Presen		_	x Depth (inches):			
Saturation Present?		No	x Depth (inches):	Wet	land Hydrology Present?	Yes x No
(includes capillary fri		onitoring well a	erial photos, previous insp	pactions) if available:		
Describe Recorded	Jaia (Siream gauge, m	ormoring well, as	eriai priotos, previous iris	Dections), ii avaliable.		
Remarks:						

WC-074-DP1

SOIL Sampling Point: WC-074-DP1

e: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  ic Soil Indicators: Histosci (A1) Histo Epipedon (A2) Black Histo (A3) Thin Dark Surface (S8) (LRR R, MLRA 149B) Black Histo (A3) Thin Dark Surface (S9) Loamy Mucky Mineral (S1) Depleted Below Dark Surface (A11) X Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sator Gleyed Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Sators of hydrophylic vegetation and wetland hydrology must be present, unless disturbed or problematic.	De 10YR 3/1 95% 10YR 4/6 5% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% C M Silty Loam  10 10YR 5/2 80% 10YR 4/6 20% 10		0 1 / 1 0			edox Featur	-	1.0.2	<b>-</b> .	5 .
e: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>3</sup> Location: PL=Pore Lining, M=Matrix.  ic Soil Indicators:  Indicators for Problematic Hydric Soils <sup>3</sup> :  Indicators for Problematic Hydric Soils <sup>3</sup> :  2 cm Muck (A10) (LRR K, L, MLRA 149B)  Histo Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR K, L)  Depleted Matrix (F3)  Loamy Gleyed Matrix (F3)  Thick Dark Surface (A11)  Sandy Mucky Mineral (F1)  Sandy Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (F12)  Other (Explain in Remarks)  Type:	e: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *Location: PL=Pore Lining, M=Matrix.  ric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Surface (S8) (LRR R, Indicators for Problematic Hydric Soils*: Polyvalue Below Care Muck (A10) (LRR K, L, MLRA 149B) Dark Surface (S7) (LRR K, L, MLRA 149B) Dark Surface (S7) (LRR K, L, M) Dar	<u> </u>	Color (moist)	%	Color (moist)	%	Туре	Loc	rexture	Remarks
C-Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Soil Indicators: Histicosol (A1) Histic Epipedon (A2) Histic Epipedon (A2) Histic (A3) Histic (A3) MLRA 149B) MLRA 149B) MLRA 149B) MLRA 149B) MLRA 149B) MLRA 149B) MIRA 149B	C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Porte Lining, M=Matrix.  c Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, L) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, M) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Depleted Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L) Thick Dark Surface (A11) X Depleted Matrix (F2) Polyvalue Below Surface (S9) (LRR K, L) Thick Dark Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Pledmont Floodplain Soils (F19) (MLRA Sandy Gleyed Matrix (S4) Redox Depressions (F8) Red Parent Material (F21) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  ators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		10YR 3/1	95%	10YR 4/6	5%	C	M	Silty Loam	
Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) X Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Autors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Dcoast Prairie Redox (A16) (LRR K, L, R) Coast Prairie Redox (A16) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L, M) Dark Surface (S9) (LRR K, L, M) Mesic Spodic (TA6) (MLRA 144B, 145, 149B) Autors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:	Indicators: Histosol (A1) Histosol (A2) MLRA 149B) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Polyvalue Below Surface (S9) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Frairie Redox (A16) (LRR K, L, R) Some Mucky Peat or Peat (S3) (LRR K, L, R) Frairie Redox (A16) (LRR K, L, R) Frairie Redox (A16) (LRR K, L, R) Frairie Redox (A16) (LRR K, L, R) Some Mucky Peat or Peat (S3) (LRR K, L, R) Frairie Redox (A16) Frairie Redox (A16) (LRR K, L, R) Frairie Redox (A16) Frairie Redox	)	10YR 5/2	80%	10YR 4/6	20%	C	M	Silty Loam	
c Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MIRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thick Dark Surface (A11) X Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  attors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Itrype:  Type:	c Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox (S5) Stripped Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR K, L) Redox Depressions (F8) Stripped Matrix (S6) Dark Surface (S7) (LRR K, L) Dark Surface (S7) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L) Piedmont Floodplain Soils (F19) (MLRA Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  attors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  ictive Layer (if observed):									
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Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Depleted Below Dark Surface (A11) Thick Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR K, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L, M) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)  Black Histic (A3) Thin Dark Surface (A12) Thin Dark Surface (A12) Thin Dark Surface (A12) Thin Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R) Dark Surface (S7) (LRR K, L, R) Dark Surface (S7) (LRR K, L, M)  Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 1 Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.									
Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Depleted Below Dark Surface (A11) Thick Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR K, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L, M) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	ric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR K, L) Dark Surface (T12) Coast Prairie Redox (A16) (LRR K, L, R) Coast Prairie Redox (A16) Coast Prairie Redox (A16) (LRR K, L, R) Coast Prairie Redox (A16) (LRR K, L) Coast Prairie Redox (A16) (LRR K, L) Coast									
Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Depleted Below Dark Surface (A11) Thick Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR K, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)  Dark Surface (S7) (LRR K, L, M) Dark Surface (S9) (LRR K, L, M) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 1498) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  This Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Cher (Explain in Remarks)  This Dark Surface (S7) Char K, L, M)  Sandy Redox (S5) Char K, L, M)  Sandy Redox (S5) Char K, L, M)  Thin Dark Surface (S8) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L) Piedmont Floodplain Soils (F19) (MLRA 144A, 145, 1)  Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  This Dark Surface (S7) Char (Explain in Remarks)  This Dark Surface (S7) Char Mucky Mineral (S1) Char K, L, M)  Sandy Redox (S5) Char K, L)  Redox Depressions (F8) Char K, L)  Stripped Matrix (S6) Char K, L) Char K, L)  Sandy Redox (S5) Char K, L) Ch									
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B)  Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)  Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)  Depleted Below Dark Surface (A11) X Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)  Thick Dark Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)  Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B)  Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Sandy Redox (S5) Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 1498) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  This Dark Surface (S7) Stripped Matrix (S6) Dark Surface (S7) Cher (Explain in Remarks)  This Dark Surface (S7) Char K, L, M)  Sandy Redox (S5) Char K, L, M)  Sandy Redox (S5) Char K, L, M)  Thin Dark Surface (S8) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L) Piedmont Floodplain Soils (F19) (MLRA 144A, 145, 1)  Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  This Dark Surface (S7) Char (Explain in Remarks)  This Dark Surface (S7) Char Mucky Mineral (S1) Char K, L, M)  Sandy Redox (S5) Char K, L)  Redox Depressions (F8) Char K, L)  Stripped Matrix (S6) Char K, L) Char K, L)  Sandy Redox (S5) Char K, L) Ch	e: C=Con	centration, D=Depletion	on, RM=Re	duced Matrix, MS=Mas	ked Sand G	Grains. <sup>2</sup> Loc	ation: PL=	Pore Lining, M=Matrix	Х.
Histic Epipedon (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR K, L, R)  Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR K, L) Thin Dark Surface (S9) (	Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Sandy Mucky Mineral (S1)  Sandy Mucky Mineral (S1)  Sandy Redox (S5)  Sandy Redox (S5)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7)  Stripped Matrix (S6)  Dark Surface (S7)  Stripped Matrix (S6)  Dark Surface (S7)  Redox Depressions (F8)  Stripped Matrix (S6)  Dark Surface (S7)  MLRR K, L, R)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  5 cm Mucky Peat or Peat (S3) (LRR K, L, M)  Follows Surface (S7) (LRR K, L)  Follows Surface (S9) (LRR K, L)  F				5 5.	0 ( (0)				
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA149B) Thydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR K, L, M) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)	_		-		Surface (St	3) <b>(LKK K,</b>			
Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Depleted Below Dark Surface (A11)  Thin Dark Surface (S9) (LRR K, L)  Thick Dark Surface (A12)  X Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144B)  Redox Depressions (F8)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Th	Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR K, L)  Redox Depressions (F8)  Stripped Matrix (S6)  Dark Surface (S7) (LRR K, L)  Redox Depressions (F8)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Sators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		. ,			e (S9) <b>(LRF</b>	R, MLRA	149B)		
Depleted Below Dark Surface (A11) X Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Depleted Below Dark Surface (A11) x Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 1 Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Trictive Layer (if observed):			-		. , ,	LRR K, L)			
Thick Dark Surface (A12) x Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Thick Dark Surface (A12) X Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 1 Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  icators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  trictive Layer (if observed):	_		(111)						
Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Peledmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox Depressions (F8)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Trictive Layer (if observed):	-		-						
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  Other (Explain in Remarks)	Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Citators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Strictive Layer (if observed):			-						
Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Type:  Type:	Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  strictive Layer (if observed):	_		_	Redox Depression	ons (F8)				
Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Tictive Layer (if observed):  Type:	Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Cators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  trictive Layer (if observed):									, ,
Type:	trictive Layer (if observed):	_		RR M, MLR	A 149B)					
Type:	trictive Layer (if observed):	_			•					,
Type:		cators of	hydrophytic vegetation	n and wetla	nd hydrology must be p	resent, unle	ess disturbe	d or proble	matic.	
	Type:	trictive La	ayer (if observed):							
Depth (inches): Hydric Sail Present? Ves v. No.	71 -	Type:								
	Depth (inches): Hydric Soil Present? Yes x No	Denth (ii	nches):					Hydric S	nil Present?	Yes y No
	arks:									

Project/Site:	I-275			City/County: Cant	ton / Wayne County	Sampling Date: 7.23.2012
Applicant/Owner:	Michigan Depar	rtment of Transporta	tion		State: MI	Sampling Point: WC-074-DP2
Investigator(s):	R. Roos, S. Kog	gge		Section, T	Township, Range: T8E, R2S, S12	
Landform (hillslope, te	errace, etc.):	depression			Local relief (concave, convex, none	e): concave
Slope (%):	1% Lat:	42 19	9'37.79" L	ong:	83 26'40.18"	Datum: UTM 16N
Soil Map Unit Name:	Kibbie fi	ne sandy loam	_	·	NWI cla	ssification: none
Are climatic / hydrolog	gic conditions on t	he site typical for this	s time of year?	Yes	No x (If no, explain in Rema	arks.)
Are Vegetation	n , Soil	n , or Hydroloς	gy n significantly dist	urbed?	Are "Normal Circumstances" presen	nt? Yes No x
Are Vegetation	n , Soil	n , or Hydrolog	gy n naturally proble	matic?	(If needed, explain any answers in R	temarks.)
SUMMARY OF	FINDINGS /	 Attach site map	showing sampling	point location	ns, transects, important fea	tures, etc.
Hydrophytic Vegetat	rion Present?	Yes	No x	Is the Samp	lled Δrea	
Hydric Soil Present?		Yes	No x	within a We		No x
Wetland Hydrology F	Present?	Yes	No x		nal Wetland Site ID:	<del></del>
Remarks: (Expla	ain alternative pro	cedures here or in a	separate report.)	1		
, , ,			ea according to NOAA - Ju	uly 17, 2012		
HYDROLOGY						
· · · · · · · · · · · · · · · · · · ·						
Wetland Hydrology			hat ann hù			minimum of two required)
Primary Indicators (r Surface Water		required; check all t	Mater-Stained Leaves	(RQ)	x Surface Soil Crac Drainage Patterns	` '
High Water Tal	` '		Aquatic Fauna (B13)	s (B9)	Moss Trim Lines (	, ,
Saturation (A3)			Marl Deposits (B15)		Dry-Season Wate	` '
Water Marks (E			Hydrogen Sulfide Odd	or (C1)	Crayfish Burrows	
Sediment Depo	osits (B2)		Oxidized Rhizosphere	s on Living Roots	(C3) Saturation Visible	on Aerial Imagery (C9)
Drift Deposits (	B3)		Presence of Reduced	Iron (C4)	Stunted or Stress	ed Plants (D1)
Algal Mat or Cr	ust (B4)		Recent Iron Reduction	n in Tilled Soils (Co	6) Geomorphic Posi	lion (D2)
Iron Deposits (I	,	_	Thin Muck Surface (C	7)	Shallow Aquitard	
	ble on Aerial Imag		Other (Explain in Rem	arks)	Microtopograpic F	
Sparsely Veget	tated Concave Su	rface (B8)			FAC-Neutral Test	(D5)
Field Observations	.:					
Surface Water Prese			x Depth (inches):			
Water Table Presen			x Depth (inches):			
Saturation Present?		No	x Depth (inches):		Wetland Hydrology Present?	Yes No X
(includes capillary fri		ge monitoring well	aerial photos, previous ins	nections) if availa	able:	
Describe recorded	Data (Stream gau	ge, morntoning wen, t	acriai priotos, previous iris	pections), ii avaiic	iolo.	
Remarks:						

WC-074-DP2

SOIL Sampling Point: WC-074-DP2

hes)	Matrix			edox Featur	-	1 2	<b>-</b> .	_		
	Color (moist)	%	Color (moist)	%	Type	Loc²	Texture	h	Remarks	
)	10YR 3/1	99%	10YR 4/6	1%	C	M	Silty Loam			
0	10YR 5/2	98%	10YR 4/6	2%	С	M	Silty Loam			
			-							
	acontration D-Danlation	on PM-Po	duced Matrix, MS=Mas	rkad Sand C	Proinc 2 oc	ention: DI –	Poro Lining M-Matri	,		
	ndicators:	JII, INIVILINE	udced Matrix, MO=Mas	Red Sand C	nains. Loc	ation. i L=	Indicators for Pro		ic Soils <sup>3</sup> :	
Histoso	I (A1)	_	Polyvalue Below	Surface (S8	3) <b>(LRR R,</b>		2 cm Muck	(A10) <b>(LRR K,</b>	L, MLRA 149B)	
	pipedon (A2)		MLRA 149B)	- (OO) (I DE		1.40D)			(LRR K, L, R)	Β\
	istic (A3) en Sulfide (A4)	-	Thin Dark Surface Loamy Mucky Mil			149B)		e (S7) <b>(LRR K</b>	(S3) (LRR K, L, I	K)
	d Layers (A5)	-	Loamy Gleyed M						(S8) (LRR K, L)	
	d Below Dark Surface	(A11)	Depleted Matrix (				Thin Dark S	urface (S9) (L	RR K, L)	
•	ark Surface (A12)	-	Redox Dark Surfa	, ,					F12) (LRR K, L,	
	Mucky Mineral (S1)	-	Depleted Dark St						(F19) <b>(MLRA 14</b> <b>A 144A, 145, 14</b> 9	
	Gleyed Matrix (S4) Redox (S5)	-	Redox Depressio	ns (F8)				Material (F21)		96)
	d Matrix (S6)							w Dark Surface		
Dark Su	ırface (S7) (LRR R, LF	RR M, MLR	A 149B)				Other (Expla	ain in Remarks	s)	
otore of	hydrophytic vogotation	o and watla	nd hydrology must be p	aracant unk	oce dicturbe	d or proble	matia			
		i and wella	na nyarology must be p	nesent, unie	355 015(011)	d of proble	inauc.			
rictive L	ayer (if observed):									
Type:										
	inches):					l a	oil Present?	Yes	No	х

Project/Site:	I-275		C	ity/County: Canton	/ Wayne County	Sampling Date: 7.24.2012
Applicant/Owner:	Michigan Department	of Transportatio	n		State: MI	Sampling Point: WC-081-DP1
Investigator(s):	R. Roos, S. Kogge			Section, Tow	nship, Range: T8E, R2S, S12	
Landform (hillslope, te	rrace, etc.): depre	ssion		Lc	ocal relief (concave, convex, none	): concave
Slope (%):	0% Lat:	42 18'3	9.34" Lo	ng:	83 26'27.30"	Datum: UTM 16N
Soil Map Unit Name:	Pella silt loam				NWI clas	sification: none
Are climatic / hydrolog	ic conditions on the site	typical for this ti	me of year?	Yes	No x (If no, explain in Rema	rks.)
Are Vegetation	n , Soil n	, or Hydrology	n significantly distu	rbed? Are	"Normal Circumstances" present	? Yes No x
Are Vegetation	n, Soil n	, or Hydrology	n naturally problem	atic? (If r	needed, explain any answers in R	emarks.)
SUMMARY OF I	FINDINGS Attac	h site map s	howing sampling p	ooint locations	, transects, important fea	tures, etc.
Hydrophytic Vegetati	ion Present?	Yes x	No	Is the Sampled	l Area	
Hydric Soil Present?		Yes x	No	within a Wetla		x No
Wetland Hydrology F	resent?	Yes x	No	If yes, optional	Wetland Site ID: WC-081	
Remarks: (Expla	in alternative procedure	s here or in a se	eparate report.)	•		
We are currently exp	eriencing a severe drow	ght for this area	according to NOAA - Jul	y 17, 2012		
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondary Indicators (n	ninimum of two required)
	ninimum of one is requir	ed; check all tha	at apply)		x Surface Soil Crack	
Surface Water		x	Water-Stained Leaves	(B9)	x Drainage Patterns	
High Water Tab	ole (A2)		Aquatic Fauna (B13)		Moss Trim Lines (	316)
Saturation (A3)			Marl Deposits (B15)		Dry-Season Water	r Table (C2)
x Water Marks (B	·1)		Hydrogen Sulfide Odor	(C1)	Crayfish Burrows (	(C8)
Sediment Depo			Oxidized Rhizospheres			on Aerial Imagery (C9)
Drift Deposits (E			Presence of Reduced I		Stunted or Stresse	
Algal Mat or Cru			Recent Iron Reduction	, ,	x Geomorphic Positi	
Iron Deposits (E	*		Thin Muck Surface (C7)		x Shallow Aquitard (	
	ole on Aerial Imagery (B ated Concave Surface (	· —	Other (Explain in Rema	irks)	x Microtopograpic R FAC-Neutral Test	
					IAO-Neuliai lest	(03)
Field Observations:		NI-	Danille Cardinal			
Surface Water Prese Water Table Present			x Depth (inches): x Depth (inches):			
Saturation Present?	Yes		x Depth (inches):		tland Hydrology Present?	Yes x No
(includes capillary frin		- 110	Bopui (monos).	<sup></sup>	nana nyarology i rosoni.	100 <u>x</u> 110
Describe Recorded I	Data (stream gauge, mc	nitoring well, ae	rial photos, previous insp	ections), if available	):	
Remarks:						
remarks.						
i e						

WC-081-DP1

SOIL Sampling Point: WC-081-DP1

Color (moist)	Matrix Color (moist)	0/	Color (maint)	Redox Featur	Type <sup>1</sup>	Loc²	Toyturo	Domorko
10YR 5/2 70% 10YR 5/6 20% C M Silty Loam  10YR 3/1 10% Silty Loam  Indicators for Problematic Hydric Soils*:  2 cm Muck (A10) (LRR K, L, MLRA 149B)  Coast Prainie Redox (A10) (LRR K, L, R)  So m Muck (A10) (LRR K, L, R)  So m Muck (A10) (LRR K, L, R)  Dark Surface (A10) (LRR K, L, R)  Dark Surface (A10) (LRR K, L, M)  Dark Surface (A10) (LRR K, L, M)  Soldy Mucky Mineral (S1) (LRR K, L)  Dapketed Dark Surface (F0) (LRR K, L)  Think Dark Surface (A11) (LRR K, L)  Soldy Mucky Mineral (S1) (LRR K, L, R)  Soldy Mucky Mineral (S1) (LRR K, L)  Soldy Mucky Min			Color (moist)	- %	Туре	LUC		Remarks
E: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  ic Soil Indicators: Histosoi (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Depleted Below Dark Surface (A11) Think Dark Surface (A12) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Think Dark Surface (A12) Polyvalue Below Surface (S9) (LRR R, L, R) Depleted Below Dark Surface (A11) Think Dark Surface (A12) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L, R) Thin Dark Surface (S9) (LRR K,	10YR 2/1	100%					Silty Loam	
E: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  ic Soil Indicators: Histosof (A1) Polyvalue Below Surface (S8) (LRR R, Coast Prairie Redox (A10) (LRR K, L, MLRA 149B) Black Histic (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Hydrogen Sulficle (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) X Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Surface (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  atters of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rictive Layer (if observed): Type: None observed  Depth (inches): Hydric Soil Present? Yes x No	10YR 5/2	70%	10YR 5/6	20%	С	M	Silty Loam	
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,	10YR 3/1	10%					Silty Loam	
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								_
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,			-					
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Indicators: Indicators: Indicators: Indicators for Problematic Hydric Soils <sup>3</sup> :  Histosol (A1) Polyvalue Below Surface (S8) (LRR R,								
Histosol (A1)		ion, RM=Re	educed Matrix, MS=M	lasked Sand C	Grains. <sup>2</sup> Loc	ation: PL=		
Histic Epipedon (A2)  MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Hydrogen Sulfide (A4)  Loamy Mucky Mineral (F1) (LRR K, L)  Dark Surface (S7) (LRR K, L, M)  Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Polyvalue Below Surface (S8) (LRR K, L)  Depleted Below Dark Surface (A11)  X  Depleted Matrix (F3)  Thin Dark Surface (S9) (LRR K, L)  Thick Dark Surface (A12)  Redox Dark Surface (F6)  Iron-Manganese Masses (F12) (LRR K, L, R)  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Sandy Gleyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Sandy Redox (S5)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Titive Layer (if observed):  Type: None observed  Hydric Soil Present?  Yes x  No			Polyvalue Belo	ow Surface (S	3) <b>(LRR R.</b>			
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L, M) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L) Thick Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Autors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Trictive Layer (if observed): Type: None observed  Depth (inches): Hydric Soil Present? Yes x No				,	, ,		Coast Prairie F	Redox (A16) (LRR K, L, R)
Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Depleted Below Dark Surface (A11)  Thin Dark Surface (A12)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 149B)  Seators Spodic (TA6) (MLRA 144A, 145, 149B)  Other (Explain in Remarks)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Other (Explain in Remarks)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Other (Explain in Remarks)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Other (Explain in Remarks)  Polyvalue Below Surface (S9) (LRR K, L)  To pied Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Piedmont Floodplain Soils (F19) (						149B)		
Depleted Below Dark Surface (A11) x Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  attors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rictive Layer (if observed):  Type: None observed  Depth (inches): Hydric Soil Present? Yes x No		-			LKK K, L)			, , , , , ,
Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  actors of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rictive Layer (if observed):  Type: None observed  Depth (inches): Hydric Soil Present? Yes x No	• • •	(A11)						
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  ators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rictive Layer (if observed): Type: None observed  Depth (inches): Hydric Soil Present? Yes x No	Thick Dark Surface (A12)	` ′ •					Iron-Mangane	se Masses (F12) (LRR K, L, R)
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Part of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  Prictive Layer (if observed):  Type: None observed  Depth (inches):  Hydric Soil Present?  Yes x No		-						
Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in Remarks)  ators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rictive Layer (if observed): Type: None observed  Depth (inches): Hydric Soil Present? Yes x No		-	Redox Depres	sions (F8)				
Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in Remarks)  eators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  rictive Layer (if observed):  Type: None observed  Depth (inches): Hydric Soil Present? Yes x No								,
Tipe: None observed		RR M, MLR	A 149B)					
Tipe: None observed			•					
Type:         None observed           Depth (inches):         Hydric Soil Present?         Yesx No		n and wetla	nd hydrology must b	e present, unl	ess disturbe	d or proble	ematic.	
Depth (inches): Hydric Soil Present? Yes x No	ictive Layer (if observed):							
	Type: None observed							
arks:	Depth (inches):					Hydric S	oil Present? Ye	es <u>x</u> No
	ırks:							

Project/Site:	I-275			City/County: Ca	nton / Wayne Coun	ty	Sampling Date: 7.24.2012
Applicant/Owner:	Michigan Depar	rtment of Transporta	tion			State: MI	Sampling Point: WC-081-DP2
Investigator(s):	R. Roos, S. Ko	gge		Section,	Township, Range:	T8E, R2S, S12	
Landform (hillslope, to	errace, etc.):	side slope - terrace			Local relief (conc	ave, convex, none):	convex - flat
Slope (%):	2% Lat:	42 18	3'39.29"	Long:	83 26'27.6	1"	Datum: UTM 16N
Soil Map Unit Name:	Pella silt	t loam				NWI class	ification: none
Are climatic / hydrolog	gic conditions on t	he site typical for this	time of year?	Yes	No x (If n	o, explain in Remark	ss.)
Are Vegetation	n, Soil	n , or Hydrolog	y n significantly dis	sturbed?	Are "Normal Circu	mstances" present?	Yes No x
Are Vegetation	n, Soil	n, or Hydrolog	y n naturally probl	ematic?	(If needed, explain	any answers in Re	marks.)
SUMMARY OF	FINDINGS A	Attach site map	showing sampling	g point location	ons, transects,	important featu	ıres, etc.
Hydrophytic Vegetat	tion Present?	Yes	No x	Is the Sam	pled Area		
Hydric Soil Present?		Yes	No x	within a W		Yes	No x
Wetland Hydrology I	Present?	Yes	No x	If yes, option	onal Wetland Site ID	):	
Remarks: (Expla	ain alternative pro	cedures here or in a	separate report.)	•			
We are currently exp	periencing a seve	re drought for this are	ea according to NOAA -	July 17, 2012			
HYDROLOGY							
Wetland Hydrology	/ Indicators:				Seco	ndary Indicators (mi	nimum of two required)
Primary Indicators (r	minimum of one is	required; check all t	hat apply)			Surface Soil Cracks	(B6)
Surface Water	(A1)		Water-Stained Leave	es (B9)		Drainage Patterns (	B10)
High Water Tal	ble (A2)		Aquatic Fauna (B13)	)		Moss Trim Lines (B	16)
Saturation (A3)			Marl Deposits (B15)			Dry-Season Water	, ,
Water Marks (E	,	_	Hydrogen Sulfide Oc	. ,	(00)	Crayfish Burrows (C	,
Sediment Depo			Oxidized Rhizospher	_	s (C3)		n Aerial Imagery (C9)
Drift Deposits (			Presence of Reduce			Stunted or Stressed	
Algal Mat or Cr			Recent Iron Reduction Thin Muck Surface (	•		Geomorphic Position	
	ble on Aerial Imag	nery (B7)	Other (Explain in Re	*		Shallow Aquitard (D Microtopograpic Re	
	tated Concave Su		Other (Explain in Ne	marks)		FAC-Neutral Test (I	
Field Observations							,
Surface Water Pres		No	x Depth (inches):				
Water Table Presen			x Depth (inches):				
Saturation Present?			x Depth (inches):		Wetland Hydrolo	gy Present?	Yes No X
(includes capillary fri				'			
Describe Recorded	Data (stream gau	ge, monitoring well, a	aerial photos, previous in	spections), if avai	lable:		
Remarks:							
No visual signs	of hydrology.						

WC-081-DP2

SOIL Sampling Point: WC-081-DP2

Profile Descr	iption: (Describe to t	he depth r	needed to documen			n the abse	ence of indicators.)		
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Redox Featur %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-12	10YR 3/2	100%					Silty Loam		
12-20	10YR 5/4	93%	10YR 5/6	2%	С	М	Silty Loam		
	10YR 3/2	5%					Silty Loam		
	centration, D=Depletic	on, RM=Re	duced Matrix, MS=N	lasked Sand G	Grains. <sup>2</sup> Loc	ation: PL=I	Pore Lining, M=Matrix	ζ.	
Hydric Soil Ir Histosol			Polyvalue Belo	ow Surface (S8	3) <b>(LRR R,</b>			blematic Hydric Soils <sup>3</sup> : (A10) (LRR K, L, MLRA 149B)	
Histic Ep	pipedon (A2)	-	MLRA 149E	3)		140D)		e Redox (A16) (LRR K, L, R)	• •
	stic (A3) en Sulfide (A4)	-	Thin Dark Surf Loamy Mucky			1496)		r Peat or Peat (S3) <b>(LRR K, L, F</b> re (S7) <b>(LRR K, L, M)</b>	χ)
	d Layers (A5) d Below Dark Surface	· (A11)	Loamy Gleyed Depleted Matri					elow Surface (S8) (LRR K, L) urface (S9) (LRR K, L)	
	ark Surface (A12)	(ATT) <u>-</u>	Redox Dark S					nese Masses (F12) (LRR K, L,	R)
	Mucky Mineral (S1) Bleyed Matrix (S4)	-	Depleted Dark Redox Depres					loodplain Soils (F19) <b>(MLRA 14</b> ic (TA6) <b>(MLRA 144A, 145, 14</b> 9	-
	Redox (S5)	-	Redox Deples	Sioris (Fo)				Material (F21)	,5,
	Matrix (S6)	D M MID	A 4 40P)					w Dark Surface (TF12)	
Dark Su	rface (S7) (LRR R, LR	K W, WLK	А 149В)				Other (Expla	ain in Remarks)	
<sup>3</sup> Indicators of	hydrophytic vegetation	and wetla	nd hydrology must b	e present, unle	ess disturbe	d or proble	matic.		
Restrictive La	ayer (if observed):								
Type: N	lone observed								
Depth (i	nches):					Hydric So	oil Present?	Yes No	<u>x</u>
Remarks:									

Project/Site:	I-275			City/County: Cant	on / Wayne County	Sampling Date: 7.16.2012
Applicant/Owner:	Michigan Department	of Transportati	on		State: MI	Sampling Point: WC-087-DP1
Investigator(s):	R. Roos, A. Reinhardt			Section, T	ownship, Range: T8E, S12, R2S	3
Landform (hillslope, te	rrace, etc.): bowl s	shape depressi	ion in old field		Local relief (concave, convex, no	one): concave
Slope (%):	0% Lat:	42 20	'6.00" L	ong:	83 26'45.59"	Datum: UTM 16N
Soil Map Unit Name:	Shoals silt loan	n		•	NWI	classification: none
Are climatic / hydrolog	ic conditions on the site	typical for this	time of year?	Yes	No x (If no, explain in Re	marks.)
Are Vegetation	n , Soil y	, or Hydrology	y n significantly dis	turbed?	Are "Normal Circumstances" pres	sent? Yes No x
Are Vegetation	n , Soil n	, or Hydrology	n naturally proble	matic?	If needed, explain any answers i	n Remarks.)
SUMMARY OF	FINDINGS Attac	- h site map	showing sampling	point location	ns, transects, important f	eatures, etc.
Hydrophytic Vegetat	ion Present?	Yes x	No	Is the Samp	led Area	
Hydric Soil Present?		Yes x		within a We		x No
Wetland Hydrology F	Present?	Yes x	No	If yes, option	al Wetland Site ID: WC-0	
Remarks: (Expla	in alternative procedure	s here or in a s	separate report.)	•		
Emergent, old field.	Disturbed soil profile - o	ld area of deve	elopment. Unseasonably	low rainfall, droug	hty conditions.	
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondary Indicator	s (minimum of two required)
	ninimum of one is requir	ed; check all th	nat apply)		x Surface Soil C	
Surface Water			Water-Stained Leave	s (B9)	Drainage Patte	, ,
High Water Tab	ole (A2)		Aquatic Fauna (B13)		Moss Trim Line	es (B16)
Saturation (A3)			Marl Deposits (B15)		Dry-Season W	ater Table (C2)
Water Marks (E	<b>31</b> )		Hydrogen Sulfide Odd	or (C1)	Crayfish Burro	ws (C8)
Sediment Depo			Oxidized Rhizosphere	_	· · · · · · · · · · · · · · · · · · ·	ble on Aerial Imagery (C9)
Drift Deposits (I			Presence of Reduced			essed Plants (D1)
Algal Mat or Cri			Recent Iron Reductio	,	· — ·	
Iron Deposits (E	,	7)	Thin Muck Surface (C	,	Shallow Aquita	
	ole on Aerial Imagery (Bi rated Concave Surface (		Other (Explain in Ren	iaiks)	Microtopograp  x FAC-Neutral T	
Field Observations		Na	Danth (inches).			
Surface Water Present Water Table Present		_ No	x Depth (inches): x Depth (inches):	-		
Saturation Present?	Yes	No No	x Depth (inches):		Wetland Hydrology Present?	Yes x No
(includes capillary fri		- "-	X Dopar (monco).		rodana riyarology i rodoni.	100 <u>x</u> 110
		nitoring well, a	erial photos, previous ins	spections), if availa	ble:	
Remarks:						

WC-087-DP1

SOIL Sampling Point: WC-087-DP1

10YR 10YR 10YR 10YR	3/2 5/2	95% 70% 30% 10%	Color (moist)  10YR 4/6  10YR 4/6  10YR 5/6	% 5% 30% 60%	C C C	M M M	Sandy Loam Loamy Clay Clay	Ren	narks
10YR 10YR	3/2 5/2	70% 30%	10YR 4/6	30%	С	М	Loamy Clay		
10YR	5/2	30%							
			10YR 5/6	60%		M	Clay		
10YR	6/2	10%							
					_				
=Concentrati	on, D=Depletion	n, RM=Red	duced Matrix, MS=	Masked Sand G	Grains. <sup>2</sup> Loc	ation: PL=	Pore Lining, M=Mat	rix.	
oil Indicator							Indicators for Pro	oblematic Hydric	
tosol (A1)	(40)	-	Polyvalue Be MLRA 149	elow Surface (S8	3) <b>(LRR R,</b>			k (A10) <b>(LRR K, L,</b> irie Redox (A16) <b>(L</b>	
tic Epipedon ck Histic (A3	. ,			ים, Irface (S9) <b>(LRR</b>	R, MLRA	149B)		ky Peat or Peat (S3	
drogen Sulfid		_	Loamy Muck	y Mineral (F1) (I	LRR K, L)			ace (S7) (LRR K, L	
atified Layers				ed Matrix (F2)				Below Surface (S8 Surface (S9) (LRR	
ck Dark Surf	Dark Surface (A ace (A12)	_	Depleted Ma  Redox Dark					anese Masses (F1	-
ndy Mucky M		_		rk Surface (F7)				Floodplain Soils (F	
ndy Gleyed N		>	Redox Depre	essions (F8)				dic (TA6) (MLRA 1	44A, 145, 149B)
ndy Redox (S pped Matrix								nt Material (F21) ow Dark Surface (1	ΓF12)
	67) <b>(LRR R, LR</b> F	R M, MLR	A 149B)					plain in Remarks)	,
ra of budrook	vutia vagatation	and watlar	nd hydrology must	he present unk	aa diaturba	d or proble	matia		
		and wellar	ia nyarology must	be present, unit	255 015(010)	d of proble	mauc.		
ve Layer (if	observed):								
e: None ob	served								
oth (inches):	_					Hydric S	oil Present?	Yes x	No

Project/Site:	I-275		Ci	ty/County: Cant	on / Wayne County	Sampling Date: 7.16.2012
Applicant/Owner:	Michigan Depart	tment of Transporta	tion		State: MI	Sampling Point: WC-087-DP2
Investigator(s):	R. Roos, A. Reir	nhardt		Section, T	ownship, Range: T8E, S12, R2S	
Landform (hillslope, te	errace, etc.):	hillslope out of bow	-shaped depression in old fi	eld	Local relief (concave, convex, none	:): convex
Slope (%):	5% Lat:	42 2	0'6.00" Lor	ng:	83 26'52.79"	Datum: UTM 16N
Soil Map Unit Name:	Shoals s	ilt loam			NWI clas	ssification: none
Are climatic / hydrolog	jic conditions on th	ne site typical for this	s time of year?	Yes	No x (If no, explain in Rema	ırks.)
Are Vegetation	y, Soil	y , or Hydrolog	gy <u>n</u> significantly distur	bed?	Are "Normal Circumstances" presen	t? Yes No x
Are Vegetation	n , Soil	n , or Hydrolog	gy n naturally problem	atic?	(If needed, explain any answers in R	emarks.)
SUMMARY OF	FINDINGS F	Attach site map	showing sampling p	oint location	ns, transects, important fea	tures, etc.
Hydrophytic Vegetat	ion Present?	Yes	No x	Is the Samp	led Area	
Hydric Soil Present?		Yes	No x	within a We		No x
Wetland Hydrology F	Present?	Yes	No x		nal Wetland Site ID:	<del>_</del>
Remarks: (Expla	ain alternative prod	cedures here or in a	separate report.)			
` '				in area. Soil co	ntains garbage/rubble/refuse. Unse	asonably low rainfall, droughty
conditions.						
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondary Indicators (r	minimum of two required)
Primary Indicators (n		required: check all (	that apply)		Surface Soil Crac	
Surface Water			Water-Stained Leaves (	B9)	Drainage Patterns	1 1
High Water Tab	` '		Aquatic Fauna (B13)		Moss Trim Lines (	
Saturation (A3)			Marl Deposits (B15)		Dry-Season Wate	r Table (C2)
Water Marks (E	31)		Hydrogen Sulfide Odor	(C1)	Crayfish Burrows	(C8)
Sediment Depo	osits (B2)		Oxidized Rhizospheres	on Living Roots	(C3) Saturation Visible	on Aerial Imagery (C9)
Drift Deposits (I	,		Presence of Reduced Ir	, ,	Stunted or Stress	
Algal Mat or Cr			Recent Iron Reduction i	,	· — ·	
Iron Deposits (I	*		Thin Muck Surface (C7)		Shallow Aquitard	
	ble on Aerial Imag tated Concave Su		Other (Explain in Rema	K5)	Microtopograpic F FAC-Neutral Test	
						(20)
Field Observations		Ne	v. Donth (inches)			
Surface Water Present			x Depth (inches): x Depth (inches):			
Saturation Present?			x Depth (inches):		Wetland Hydrology Present?	Yes No X
(includes capillary fri			<u>x</u> 26par (mence).			<u>x</u>
		ge, monitoring well,	aerial photos, previous inspe	ections), if availa	ble:	
Remarks:						
Remarks.						

WC-087-DP2

SOIL Sampling Point: WC-087-DP2

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Zeconcentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Histic Epipedon (A2)  Stratified Layers (A5)  Loamy Mucky Mineral (F1) (LRR R, L)  Depleted Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface (S3)  Thin Dark Surface (S3)  Depleted Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Cark Surface (A12)  Redox Dark Surface (F6)  Iron-Manganese Sandy Mucky Mineral (S1)  Peledmont Floody	Remarks  Ind Soil Profile  It full of debris, human waste  Ontains dry wall, glass,  Indoorpools  Indoorpools	Sandy Loam		Color (most)		
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators:  Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Coary Mucky Mineral (B1) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (A12) Sandy Mucky Mineral (B1) Sandy Loam Mixed Profile	lle full of debris, human waste ontains dry wall, glass,				100%	101K 3/1
### Topic C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Location: PL=Pore Lining, M=Matrix.**  ### Topic C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Location: PL=Pore Lining, M=Matrix.**  ### Topic Soil Indicators:	lle full of debris, human waste ontains dry wall, glass,	Sandy Loam			000/	40)/D 0/4
ppe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  dric Soil Indicators: Histosol (A1) Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A2) MLRA 149B) Coast Prairie Re Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Flood, Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (T Sandy Redox (S5) Loark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in	ontains dry wall, glass,					
pe: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  dric Soil Indicators:  Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10  Histic Epipedon (A2) MLRA 149B) Coast Prairie Re Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Pea Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S8) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Flood Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (T Sandy Redox (S5) Red Parent Matrix Stripped Matrix (S6) Other (Explain in						
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  rdric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10  Histic Epipedon (A2)  MLRA 149B)  Coast Prairie Re  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  5 cm Mucky Pee  Hydrogen Sulfide (A4)  Loamy Mucky Mineral (F1) (LRR K, L)  Dark Surface (S  Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Polyvalue Below  Depleted Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface  Fedox Dark Surface (F6)  Iron-Manganese  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Piedmont Flood;  Sandy Gleyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (T  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in	ofoam, garbage.				20%	10YR 5/4
Histosol (A1) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stratified Matrix (S6) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Sandy Mucky Mineral (S1) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Dark Surface (S7) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A149B) Sandy Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in					30%	10YR 3/1
Histosol (A1) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stratified Matrix (S6) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Sandy Mucky Mineral (S1) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Dark Surface (S7) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A149B) Sandy Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in						
Histosol (A1) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Striaffed Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox (S5) Sandy Redox (S5) Stratified Matrix (S4) Sandy Redox (S5) Stratified Dark Surface (A12) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Dark Surface (S7) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A14) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A14) Sandy Redox (S5) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified (A4) Stripped Matrix (S6) Stratified (A2) Stripped Matrix (S6) Stratified (A3) Stripped Matrix (S6) Stratified (A3) Stripped Matrix (B1) Stripped Matrix (S6) Stratified (A2) Stripped Matrix (S6) Stratified (A2) Stripped Matrix (S6) Stripped Matrix (						
Histosol (A1) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stratified Matrix (S6) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Sandy Mucky Mineral (S1) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Dark Surface (S7) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A149B) Sandy Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in						
Histosol (A1) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Striaffed Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox (S5) Sandy Redox (S5) Stratified Matrix (S4) Sandy Redox (S5) Stratified Dark Surface (A12) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Dark Surface (S7) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A14) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A14) Sandy Redox (S5) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified Layers (A14) Sandy Redox (S6) Stratified (A4) Stripped Matrix (S6) Stratified (A2) Stripped Matrix (S6) Stratified (A3) Stripped Matrix (S6) Stratified (A3) Stripped Matrix (B1) Stripped Matrix (S6) Stratified (A2) Stripped Matrix (S6) Stratified (A2) Stripped Matrix (S6) Stripped Matrix (		· ——				
Histosol (A1) Histic Epipedon (A2) MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stratified Matrix (S6) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Sandy Mucky Mineral (S1) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Dark Surface (S7) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Stratified Layers (A149B) Sandy Redox (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in						
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) Histic Epipedon (A2) MLRA 149B) Coast Prairie Re Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Polyvalue Below Thin Dark Surface (F6) Thin Dark Surface (F7) Piedmont Flood Sandy Mucky Mineral (S1) Pandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (T Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in		<u> </u>				
Adric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R,  Polyvalue Below Surface (S8) (LRR R,  Polyvalue Below Surface (S8) (LRR R,  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Depleted Matrix (F2)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Indicators for Problem 2 cm Muck (A10)  Coast Prairie Re Cast Prairie Re Coast Prairie Re Cast Prairie Re Coast Prairie Re Coast Prairie Re Cast Prairie		<u> </u>				
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10 Histic Epipedon (A2) MLRA 149B) Coast Prairie Re Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Pea Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floody Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (T Sandy Redox (S5) Red Parent Matrix (S6) Very Shallow Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in			Grains. <sup>2</sup> Location: PL	uced Matrix, MS=Masked Sand	pletion, RM=Re	
Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, MLRA 149B)  Coast Prairie Re  5 cm Mucky Pea  6 polyvalue Below  Dark Surface (S  Polyvalue Below  Thin Dark Surface (S  Iron-Manganese  Piedmont Flood  Redox Depressions (F8)  Mesic Spodic (T  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in	ematic Hydric Soils*: 10) (LRR K, L, MLRA 149B)		8) (LRR R,	Polyvalue Below Surface (S		
Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Depleted Matrix (F2)  Polyvalue Below  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Dark Surface (F1)  Loamy Mucky Mineral (F1) (LRR K, L)  Polyvalue Below  Polyvalue Below  Thin Dark Surface (S  Redox Dark Surface (F6)  Iron-Manganese  Piedmont Flood  Mesic Spodic (T  Sandy Redox (S5)  Red Parent Matrix (S6)  Other (Explain in	Redox (A16) (LRR K, L, R)	Coast P		MLRA 149B)	•	Histic Epipedon (A2)
Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Loamy Gleyed Matrix (F2)  Polyvalue Below  Thin Dark Surface (F6)  Polyvalue Below  Polyvalue Below  Polyvalue Below  Polyvalue Below  Thin Dark Surface (F6)  Piedmont Flood  Polyvalue Flood  Polyvalue Below  Thin Dark Surface (F6)  Piedmont Flood  Polyvalue Flood  Polyvalue Flood  Thin Dark Surface (F6)  Piedmont Flood  Polyvalue Flood  Polyvalue Flood  Thin Dark Surface (F6)  Piedmont Flood  Polyvalue Flood  Polyvalue Flood  Thin Dark S	eat or Peat (S3) (LRR K, L, R)		-		,	
Depleted Below Dark Surface (A11)  Depleted Matrix (F3)  Thin Dark Surface Thick Dark Surface (A12)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Redox Depressions (F8)  Mesic Spodic (T  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Thin Dark Surface F6)  Piedmont Flood Mesic Spodic (T  Red Parent Matr  Very Shallow Da  Other (Explain in	ow Surface (S8) (LRR K, L)		LKK K, L)		,	
Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Mesic Spodic (T  Red Parent Matr  Very Shallow Da  Other (Explain in	face (S9) (LRR K, L)				face (A11)	
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (T Sandy Redox (S5) Red Parent Matr Stripped Matrix (S6) Very Shallow Da Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in	se Masses (F12) (LRR K, L, R)	Iron-Mar		Redox Dark Surface (F6)		Thick Dark Surface (A12)
Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Red Parent Matr Very Shallow Da Other (Explain in	odplain Soils (F19) (MLRA 149B)					
Stripped Matrix (S6) Very Shallow Da Dark Surface (S7) (LRR R, LRR M, MLRA 149B) Other (Explain in	(TA6) (MLRA 144A, 145, 149B)			Redox Depressions (F8)	)	
Dark Surface (S7) (LRR R, LRR M, MLRA 149B)  Other (Explain in	, ,					
idicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.				149B)	R, LRR M, MLR	
		lematic.	ess disturbed or prob	d hydroloay must be present. ur	tation and wetla	ators of hydrophytic vegetat
estrictive Layer (if observed):		.comado:	oco diotal ped or prop	z nyarology maor zo procem, ar		
Type: None observed					-7-	
· ·	ne No v	Soil Brocont?	Hydria			-
Depth (inches): [Hydric Soil Present? Yes	es No x	Soli Present?	Invalic			· · · ·

Project/Site:	I-275			City/County: Car	nton / Wayne County		Sampling Date: 7.23.2012
Applicant/Owner:	Michigan Department	of Transportation	on		S	tate: MI	Sampling Point: WC-104-DP1
Investigator(s):	R. Roos, S. Kogge			Section,	Township, Range: T8E	, R2S, S12	
Landform (hillslope, te	rrace, etc.): depre	ession			Local relief (concave,	convex, none):	concave
Slope (%):	0% Lat:	42 19'	50.17"	Long:	83 26'26.33"		Datum: UTM 16N
Soil Map Unit Name:	Pella silt loam					NWI classi	fication: PFO1C
Are climatic / hydrologi	ic conditions on the site	typical for this t	ime of year?	Yes	No x (If no, ex	plain in Remark	s.)
Are Vegetation		_	n significantly		Are "Normal Circumsta	ances" present?	Yes No x
Are Vegetation	n, Soil n	, or Hydrology	n naturally pro	blematic?	(If needed, explain any	answers in Rer	narks.)
SUMMARY OF F	FINDINGS Attac	h site map s	showing sampli	ng point location	ons, transects, imp	ortant featu	res, etc.
Hydrophytic Vegetati	on Present?	Yes x	No	Is the Sam	pled Area		
Hydric Soil Present?		Yes x	No	within a W	etland?	Yes	No
Wetland Hydrology P	resent?	Yes x	No	If yes, option	onal Wetland Site ID:	WC-104	
Remarks: (Explain	in alternative procedure	s here or in a s	eparate report.)	<u> </u>			
We are currently exp	eriencing a severe drou	ught for this area	a according to NOAA	- July 17, 2012			
LIVERGLOGY							
HYDROLOGY							
Wetland Hydrology	Indicators:				Secondar	y Indicators (mir	nimum of two required)
Primary Indicators (m	ninimum of one is requir	ed; check all the	at apply)		x Sur	ace Soil Cracks	(B6)
Surface Water (	,	X	Water-Stained Lea	, ,		nage Patterns (E	
High Water Tab	le (A2)		Aquatic Fauna (B1	*		s Trim Lines (B1	
Saturation (A3)	4)		Marl Deposits (B15			Season Water 1	
x Water Marks (B	,		Hydrogen Sulfide (	, ,		yfish Burrows (C	,
Sediment Depo			Presence of Reduce	eres on Living Root		nted or Stressed	Aerial Imagery (C9)
Algal Mat or Cru				ction in Tilled Soils (0		morphic Position	, ,
Iron Deposits (B			Thin Muck Surface	,	· —	llow Aquitard (D:	
I — ' '	ole on Aerial Imagery (B	7)	Other (Explain in R	` '		otopograpic Rel	
	ated Concave Surface			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-Neutral Test (D	
Field Observations:							
Surface Water Prese	nt? Yes	No	x Depth (inches):				
Water Table Present	? Yes	No	x Depth (inches):				
Saturation Present?	Yes	No	x Depth (inches):		Wetland Hydrology P	resent?	Yes x No
(includes capillary frin	0 /				1		
Describe Recorded D	Data (stream gauge, mo	onitoring well, as	erial photos, previous	inspections), if avai	lable:		
Remarks:							
1							
1							
Ī							

(Plot size: 15 ft.

Tree Stratum (Plot size: 30 ft.

Acer saccharinum

Ulmus americana

Carya ovata

Acer rubrum

Sapling/Shrub Stratum

llex verticillata

Carya ovata

Glyceria striata

Rhamnus cathartica

Fraxinus pennsylvanica

Herb Stratum (Plot size: 5 ft.

Parthenocissus quinquefolia

Boehmeria cylindrica

Rhamnus frangula

Geum canadense

Dryopteris marginalis

Fraxinus pennsylvanica

Acer rubrum

Woody Vine Stratum

None observed

8.

12.

Rhamnus frangula

Tilia americana

Absolute

% Cover

20

15

5

5

10

10

5

10

10

5

50

10

10

2

5

10

2

42

Dominant

Species?

Yes

Yes

No

No

No

= Total Cover

Yes

Yes

No

Yes

Yes

No

Yes

Yes

Nο

No

Yes

No No

No

= Total Cover

= Total Cover

= Total Cover

Indicator

Status

FACW

FACW

FACU

FACU

FAC

FACW

FACU

FAC

FACW

FACW

FACU

OBL

OBL

FAC

FAC

FAC

FACW

UPL

FACU

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

(Plot size: 30 ft.

SOIL Sampling Point: WC-104-DP1

6 10	OYR 2/1 OYR 6/2 OYR 6/2	100% 30% 68% 80%	10YR 6/6 10YR 5/8	2%		M M	Silty Loam Silty Loam Silty Loam		
10	)YR 6/2	68%					Silty Loam		
			10YR 5/8	20%		M			
6-24 10	OYR 6/2	80%	10YR 5/8	20%	C	M	Silty Loam		
	· · · · · · · · · · · · · · · · · · ·								
Type: C=Concent	tration D=Depletion	RM-Rec	duced Matrix, MS=Mas	sked Sand G	Grains <sup>2</sup> Loc	ation: PI –	Pore Lining M-Matr	rix	
lydric Soil Indica		i, ixivi=r\eC				auvii. FL=	Indicators for Pro	oblematic Hydric Soils <sup>3</sup> :	
Histosol (A1)		_	Polyvalue Below	Surface (S8	3) (LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)			
Histic Epiped Black Histic			MLRA 149B) Thin Dark Surface	ce (S9) <b>(LRR</b>	R. MLRA	149B)		rie Redox (A16) (LRR K, L, R) sy Peat or Peat (S3) (LRR K, L,	
Hydrogen Si		_	Loamy Mucky M			,		ice (S7) (LRR K, L, M)	
Stratified Lay	• • •	_	Loamy Gleyed N					Below Surface (S8) (LRR K, L)	
	elow Dark Surface (A	411) <u>x</u>						Surface (S9) (LRR K, L)	
	Surface (A12) xy Mineral (S1)	_	Redox Dark Surf Depleted Dark S					anese Masses (F12) <b>(LRR K, L</b> , Floodplain Soils (F19) <b>(MLRA 1</b> 4	
	ed Matrix (S4)	_	Redox Depressi					dic (TA6) <b>(MLRA 144A, 145, 14</b>	
Sandy Redo		_		,			Red Paren	t Material (F21)	
Stripped Ma								ow Dark Surface (TF12)	
Dark Surface	e (S7) <b>(LRR R, LRR</b>	R M, MLRA	l 149B)				Other (Exp	olain in Remarks)	
ndicators of hydr	rophytic vegetation a	and wetlan	nd hydrology must be	present, unle	ess disturbe	d or proble	matic.		
estrictive Layer	r (if observed):								
Type: None	e observed								
Depth (inche	es):					Hydric S	oil Present?	Yes x No	
emarks:									

Project/Site:	I-275			City/County: Car	nton / Wayne	County	Sa	ampling Date: 7.23.2012	
Applicant/Owner:	Michigan Depart	ment of Transportat	on			State: MI	Sa	Sampling Point: WC-104-DP2	
Investigator(s):	R. Roos, S. Kog	ge		Section,	Township, Ra	nge: T8E, R2S, S	12		
Landform (hillslope, te	rrace, etc.):	rise in woodland			Local relief (	concave, convex,	none): cond	ave	
Slope (%):	1% Lat:	42 19	'50.38" I	_ong:	83 26	26.56"		Datum: UTM 16N	
Soil Map Unit Name:	Pella silt I	oam		·		NW	'I classificati	on: PFO1C	
Are climatic / hydrolog	ic conditions on the	e site typical for this	time of year?	Yes	No_x	(If no, explain in F	Remarks.)		
Are Vegetation	n , Soil	n , or Hydrolog	y n significantly dis	turbed?	Are "Normal	Circumstances" pr	esent?	Yes No x	
Are Vegetation	n , Soil	n , or Hydrolog	n naturally proble	ematic?	(If needed, e	xplain any answers	in Remarks	s.)	
SUMMARY OF I	FINDINGS A	ttach site map	showing sampling	point location	ns, transe	cts, important	features	, etc.	
Hydrophytic Vegetati	on Present?	Yes x	No	Is the Sam	pled Area				
Hydric Soil Present?		Yes	No x	within a We	etland?	Ye	es	No x	
Wetland Hydrology P	resent?	Yes	No x	If yes, optio	nal Wetland S	Site ID:			
, ,	eriencing a severe	edures here or in a sedures here or in a seduced the drought for this are	separate report.) a according to NOAA - J	luly 17, 2012. Me	ets dominanc	e test for hydrophy	tic vegetatio	n, but there is little/no	
evidence of flydrolog	y of flydric solis.								
HYDROLOGY									
Wetland Hydrology						Secondary Indicate		n of two required)	
Primary Indicators (m		equired; check all the		(D0)		x Surface Soil	. ,		
Surface Water (	. ,		Water-Stained Leave	s (B9)		Drainage Par			
High Water Tab Saturation (A3)	ie (AZ)		Aquatic Fauna (B13) Marl Deposits (B15)		-	Moss Trim Li Dry-Season		(C2)	
Water Marks (B	1)		Hydrogen Sulfide Od	or (C1)	-	Crayfish Buri		(02)	
Sediment Depo	*		Oxidized Rhizosphere	` '	s (C3)		, ,	ial Imagery (C9)	
Drift Deposits (E			Presence of Reduced	_	` ′	Stunted or St			
Algal Mat or Cru	ust (B4)		Recent Iron Reductio	n in Tilled Soils (C	(6)	Geomorphic	Position (D2	<u>'</u> )	
Iron Deposits (E	35)		Thin Muck Surface (C	27)		Shallow Aqui	tard (D3)		
	ole on Aerial Image		Other (Explain in Ren	narks)		Microtopogra		04)	
Sparsely Vegeta	ated Concave Sur	face (B8)				FAC-Neutral	Test (D5)		
Field Observations:									
Surface Water Prese	-		x Depth (inches):						
Water Table Present	-		x Depth (inches):				.,		
Saturation Present?	Yes_	No	x Depth (inches):		Wetland Hyd	drology Present?	Yes	No X	
(includes capillary fring	0 /	e monitoring well a	erial photos, previous ins	enections) if avail	ahle:				
Describe recorded b	zata (stream gaug	c, morntoning wen, a	chai photos, previous in	3pcction3), ii avaii	abic.				
Remarks:									

WC-104-DP2

SOIL Sampling Point: WC-104-DP2

iches)	Matrix Color (moist)	%	Color (moist)	Redox Featur %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
13			Color (moist)		.,,,,				tomanto	
	10YR 2/1	100%					Silty Loam			
-21	10YR 5/2	70%					Silty Loam			
	10YR 3/2	30%					Silty Loam	mixed matrix		
-24	10YR 6/2	50%	10YR 5/6	10%	<u>C</u>	M	SSL	SSL = Sandy Si	lty Loam	
	10YR 3/1	40%								
/pe: C=Cc	oncentration, D=Depleti	on. RM=Re	educed Matrix. MS=Ma	asked Sand C	Grains. <sup>2</sup> Loc	ation: PL=	Pore Linina. M=N	latrix.		
dric Soil	Indicators:	,					Indicators for	Problematic Hyd		
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2) MLRA 149B)						2 cm Muck (A10) (LRR K, L, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)				
	Histic (A3)		MLRA 149B) Thin Dark Surfa		R R, MLRA					R)
Hydrog	gen Sulfide (A4)		Loamy Mucky N	∕lineral (F1) <b>(I</b>	LRR K, L)			ırface (S7) (LRR 🕨		
	ed Layers (A5)	(011)	Loamy Gleyed					ue Below Surface rk Surface (S9) <b>(L</b>		
	ed Below Dark Surface Dark Surface (A12)	(ATT) _	Depleted Matrix Redox Dark Su					nganese Masses	-	R)
	Mucky Mineral (S1)	-	Depleted Dark	Surface (F7)				nt Floodplain Soils		
	Gleyed Matrix (S4)		Redox Depress	ions (F8)				podic (TA6) (MLR		9B)
	Redox (S5) ed Matrix (S6)							rent Material (F21) allow Dark Surfac		
	urface (S7) (LRR R, LF	RR M, MLR	A 149B)					Explain in Remarks		
dicators o	f hydrophytic vegetation	n and wetla	nd hydrology must be	nrecent unk	ace dieturbe	d or proble	matic			
		Tanu wella	na nyarology mast be	present, unit	ess disturbe	d of proble	mauc.			
	Layer (if observed):									
I vne:	None observed									
туро.	(inches):					Hydric So		Yes	No	