# Appendix G7. Water Resources Technical Report (Part 1 of 2)

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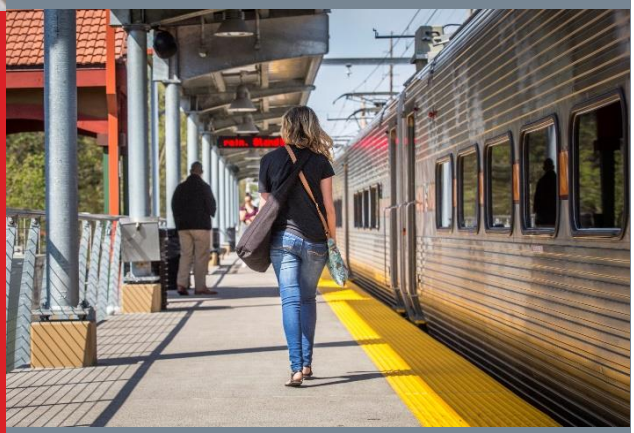
# Water Resources Technical Report

West Lake Corridor Project

Federal Transit Administration
and
Northern Indiana Commuter Transportation District

March 2018



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# Acronyms and Abbreviations

| | |
|---|---|
| C Value | coefficient of conservatism |
| CN | Canadian National Railway |
| CSX | CSX Transportation |
| CWA | Clean Water Act |
| FEIS | Final Environmental Impact Statement |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| FQI | Floristic Quality Index |
| FTA | Federal Transit Administration |
| GPS | Global Positioning System |
| IDEM | Indiana Department of Environmental Management |
| IEPA | Illinois Environmental Protection Agency |
| Metra | Metra Electric District |
| Mean C | mean coefficient of conservatism |
| NEPA | National Environmental Policy Act |
| NFSAM | National Food Security Act Manual |
| NICTD | Northern Indiana Commuter Transportation District |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetland Inventory |
| PCB | polychlorinated biphenyl |
| Project | West Lake Corridor Project |
| ROW | right-of-way |
| SSL | South Shore Line |
| TPSS | traction power substation |
| USACE | United States Army Corps of Engineers |
| USC | United States Code |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |

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# Executive Summary

The Federal Transit Administration and the Northern Indiana Commuter Transportation District (NICTD) are conducting the environmental review process for the West Lake Corridor Project (Project) in Lake County, Indiana, in accordance with the National Environmental Policy Act (NEPA) and other regulatory requirements. The purpose of the current study is to determine whether building a 9-mile southern extension of the existing NICTD South Shore Line (SSL) between Dyer and Hammond, Indiana, would negatively affect Waters of the United States in the Project Area.

On September 14-17 and 28-30, and on October 27, 2015, an initial investigation of wetland areas was conducted during the Draft Environmental Impact Statement (DEIS). Where access was granted, all wetlands located within the environmental survey area were delineated in accordance with the Section 404 guidelines of the 1987 *Corps of Engineers Wetlands Delineation Manual* (1987 Manual; USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (2010 Supplement; USACE 2010), and the NRCS *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017* (NRCS 2017a). Where access was denied, wetlands were delineated by adjacent parcels. Additional surveys were performed in these areas on May 4-5, June 4, and August 11, 2017 to investigate areas not previously delineated and to update wetland boundaries.

There are approximately 22 wetlands within the environmental survey area. Two of these wetlands are non-jurisdictional, man-made bioretention basins classified as palustrine emergent wetlands totaling 2.36 acres. The other 20 jurisdictional wetlands account for 5.95 acres, of which 4.29 acres are palustrine emergent wetlands and 1.66 acre are palustrine forested wetlands. Approximately 0.76 acre of non-jurisdictional wetlands and 3.43 acres of jurisdictional wetlands would be affected by construction.

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# 1 Introduction

The Federal Transit Administration (FTA) and Northern Indiana Commuter Transportation District (NICTD) are conducting the environmental review process for the West Lake Corridor Project (Project) in Lake County, Indiana, in accordance with the National Environmental Policy Act (NEPA) and other regulatory requirements. A Final Environmental Impact Statement (FEIS) has been prepared as part of this process, with FTA as the federal lead agency and NICTD as the local project sponsor responsible for implementing the Project under NEPA.

## 1.1 Purpose of Report

The purpose of this report is to provide information on water resources located within the environmental survey area, including location and general quality, and to provide a preliminary indication regarding impacts of the Project.

## 1.2 Project Overview

The environmental review process builds on NICTD's prior West Lake Corridor studies that examined a broad range of alignments, technologies, and transit modes. The studies concluded that a rail-based service between the Munster/Dyer area and Metra's Millennium Station in downtown Chicago would best meet the transportation needs of the northwest Indiana area. Thus, NICTD advanced a Preferred Build Alternative (referred to as the FEIS Preferred Alternative) for more detailed analysis in the FEIS. NEPA also requires consideration of a No Build Alternative to provide a basis for comparison to the Build Alternative.

### 1.2.1 No Build Alternative

The No Build Alternative is defined as the existing transportation system, plus any committed transportation improvements included in the Northwestern Indiana Regional Planning Commission's *2040 Comprehensive Regional Plan* (2011) and Chicago Metropolitan Agency for Planning's *GO TO 2040 Comprehensive Regional Plan* (2014) through the planning horizon year 2040. It also includes capacity improvements to the existing Metra line and Millennium Station, documented in NICTD's *20-Year Strategic Business Plan* (NICTD and Northwest Indiana Regional Development Authority 2014).

### 1.2.2 FEIS Preferred Alternative

The Project is an approximate 9-mile southern extension of the existing NICTD SSL between the town of Dyer and city of Hammond, Indiana. Traveling north from the southern terminus near Main Street at the Munster–Dyer municipal boundary, the Project would include new track operating at grade on a separate right-of-way (ROW) to be acquired adjacent to the CSX Transportation (CSX) Monon Subdivision rail line in Dyer and Munster (**Appendix A, Exhibit 1**). The Project alignment would be elevated from 45th Street to the Canadian National Railway (CN) Elsdon Subdivision rail line at Maynard Junction. North of the CN line, the Project alignment would return to grade and join with the publicly owned former Monon Railroad

corridor in Munster and Hammond, Indiana, and continue north. The Project would relocate the existing Monon Trail pedestrian bridge crossing over the Little Calumet River and build a new rail bridge at the location of the former Monon Railroad Bridge. The Project alignment would cross under Interstate 80/94 (I-80/94) and continue north on the former Monon Railroad corridor to Sibley Street. From Douglas Street north, the Project would be elevated over all streets and rail lines using a combination of retaining walls, elevated structures, and bridges. The Project would terminate just east of the Indiana Harbor Belt at the state line, where it would connect with the SSL. Project trains would operate on the existing MED line for the final 14 miles, terminating at Millennium Station in downtown Chicago.

Four new stations would be constructed along the alignment; Munster/Dyer Main Street, Munster Ridge Road, South Hammond, and Hammond Gateway Stations. Each station would include station platforms, parking facilities, benches, trash receptacles, bicycle racks, and other site furnishings. Shelter buildings would only be located at the Munster/Dyer Main Street and Hammond Gateway Stations.

The Project would include a vehicle maintenance and storage facility with a layover yard and traction power substation (TPSS) to power the overhead contact system, located just south of the Hammond Gateway Station, west of Sheffield Avenue. Additional TPSSs would be located at the South Hammond Station parking lot and Munster/Dyer Main Street Station. The TPSS would be enclosed to secure the electrical equipment and controls, with a footprint of about 20 feet by 40 feet.

# 2 Wetland Delineations

## 2.1 Regulatory Setting

### 2.1.1 Surface Waters

Surface waters are determined to be jurisdictional Waters of the United States if they are hydrologically connected to interstate waters or have a significant nexus to Waters of the United States. Waters of the United States are regulated under the Clean Water Act (CWA) Sections 401 (33 United States Code [USC] § 1341) and 404 (33 USC § 1344). The United States Environmental Protection Agency (USEPA) develops and interprets policy, reviews and comments on individual permit applications, and enforces Section 404 provisions. The United States Army Corps of Engineers (USACE) has jurisdiction over all Waters of the United States under the Rivers and Harbors Act of 1899. The placement of dredged or fill materials in Waters of the United States requires a permit from USACE under Section 404. The appropriate level of this permit is determined based on the type of fill activity as well as the amount and location of fill involved. As part of the permitting process, it must be demonstrated that impacts on Waters of the United States are avoided where possible and practical, minimized where avoidance is not possible, and mitigated for unavoidable impacts. Final determination of jurisdictional status and permit applicability lies with USACE.

Section 401 of the CWA requires any applicant for a Section 404 permit to obtain the Water Quality Certification for any activity that may result in the discharge of a pollutant into Waters of the United States. Section 401 Water Quality Certification is typically administered by the state. In Indiana, it is administered by the Indiana Department of Environmental Management (IDEM).

Isolated surface waters are regulated under state laws. If Waters of the State are determined to be non-jurisdictional by USACE, IDEM regulates these waters under the State Isolated Wetlands Law (Indiana Code 13-18-22), and a State Isolated Wetlands Permit may be required prior to any construction (IDEM 2016a). In addition, stormwater detention facilities are exempt from Indiana's Isolated Wetlands Law because they are human-made bodies of surface water created by excavation to retain water.

### 2.1.2 Wetlands

Jurisdictional wetlands are a category of Waters of the United States for which a specific identification methodology has been developed. USACE administers the Section 404 permitting program, including determining which wetlands are jurisdictional under the CWA. Applicable Section 404 permits may vary depending on the state in which the impacts occur and the total amount of impacts. In Indiana, USACE Indiana Regional General Permit No. 001 allows for up to 1.0 acre of wetland impacts and a maximum of 1,500 linear feet of stream channel impacts. If wetland impacts exceed the amount allowable under the appropriate regional permit, then an individual permit would be required (USACE 2014).

## 2.2 Methodology

### 2.2.1 Surface Waters

Information on the location of surface waters, including ponds, lakes, rivers, and streams, was obtained from the United States Geological Survey (USGS) National Hydrography Dataset (USGS 2008). Information on impaired waters was obtained from the *Indiana Draft 2016 Section*

*303(d) List of Impaired Waters* (IDEM 2016b). Field reconnaissance conducted on October 22 and November 3, 2014, included inspections of the identified water bodies. No water or sediment samples were taken. No data were obtained except for what was readily visible during the reconnaissance.

For the purposes of this discussion, surface waters are considered as either meeting water quality standards or as impaired. Under Section 303(d) of the CWA, states are required to determine which waters do not meet water quality standards and report these to USEPA. The reasons for these impairments are also required.

The most recent Section 303(d) List of Impaired Waters approved by the USEPA is from 2008. However, IDEM is now preparing the addendum to the 2016 Integrated Report, which will be submitted to USEPA. Information on this section was obtained from the 2016 Draft 303(d) List since it is the most recent and readily available data (IDEM 2016b).

### 2.2.2 Wetlands

On September 14-17 and 28-30, and on October 27, 2015, surveyors performed wetland investigations and delineations in the environmental survey area between Dyer and Hammond. The delineations were performed for NICTD as part of the planning process for the West Lake Corridor Project and included all rail alignment options under consideration at that time (NICTD 2016). Additional surveys were performed on May 4-5, June 4, and August 11, 2017, to investigate areas not previously delineated and to update wetland boundaries as needed.

All wetlands located within the environmental survey area were delineated. The environmental survey area includes the Project footprint and any additional area 50 feet on either side of the FEIS Preferred Alternative not included in the Project footprint. For areas with approved and safe right of entry, surveyors conducted their investigations in accordance with the Section 404 guidelines of the 1987 *Corps of Engineers Wetlands Delineation Manual* (1987 Manual; USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (2010 Supplement; USACE 2010), and the NRCS *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017* (NRCS 2017a). Wetland boundaries were flagged where property ownership allowed. For those portions of the wetland that extended outside of the 50-foot buffer, wetland boundaries were estimated and drawn on aerial photography.

Detailed exhibits that indicate the location and extent of delineated wetlands, the proposed alignment, the environmental survey area, and the Project footprint are included in **Appendix A**.

### 2.2.3 Background Research

Surveyors reviewed corresponding topographic, wetland, soil, and floodplain maps for landscape features that could indicate the presence of wetlands or other Waters of the United States. The field investigations were guided by the analysis of National Wetlands Inventory (NWI) mapping (United States Fish and Wildlife Service [USFWS] 2015); the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) soil survey of Lake County (NRCS 2017b); and the Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRMs) for Lake County (FEMA 2017). Special attention was given to areas at lower elevations, areas mapped with hydric soils, and areas with NWI-designated wetlands.

### 2.2.3.1 USGS 7.5-Minute Topographic Maps

The environmental survey area is located in the public land survey sections listed in **Table 2.2-1. Appendix A, Exhibit 2** includes the USGS Calumet City and Lake Calumet Quadrangle Topographic Maps. The flow regime of streams can be assessed using the topographic maps, with perennial streams displayed as solid blue lines and intermittent streams displayed as dashed blue lines. During a review of the USGS topographic maps, no perennial and intermittent streams were identified within the environmental survey area. Ephemeral steams do not appear on the map; however, field surveys did not find any ephemeral stream in the field. Additionally, field surveys did not find any perennial or intermittent streams that were not shown on the topographic map.

**Table 2.2-1: Public Land Survey System Townships within the Environmental Survey Area**

| Section | Township | Range |
|---|---|---|
| 25, 36 | 37N | 10W |
| 1, 12, 13, 24, 36 | 36N | 10W |
| 1 | 35N | 10W |

Source: Earth Point 2017.

### 2.2.3.2 National Wetlands Inventory Maps

NWI maps show the approximate configuration, location, and type of wetlands found in a given area. These maps are meant to be used as a reference to show general location. The maps are not meant to be used to determine precise boundaries between wetlands and uplands. Because the NWI maps are limited in precision by their scale (1:24,000) and the identification method used, the boundaries of wetlands shown on the NWI maps need to be more precisely determined in the field. Commonly, small wetland areas and, less frequently, large wetland areas are not shown. Additionally, some data can date back to the mid-70s and boundaries may not be current. **Appendix A, Exhibit 3** includes a more detailed view of the NWI wetlands in relation to the proposed Project. Sheet 2 of the exhibit depicts one wetland on the border of the environmental survey area. However, surveys conducted in this area in 2015 did not indicate the presence of a wetland at this location.

### 2.2.3.3 Soil Survey of Lake County, Indiana

Soil surveys include soil maps, soil descriptions, and soil properties to guide decisions about soil selection, use, and management. **Table 2.2-2** shows hydric and non-hydric soils along with approximate acreage in the environmental survey area. There are eight soil map units in the area investigated, including two urban land soil units: four are hydric soil units and four are non-hydric soil units or urban land (NRCS 2017b). The hydric soil units in the investigated area include Bono silty clay (Bn); Maumee loamy fine sand (Mm); Milford silt loam, overwash (Mo); and Rensselaer loam, calcareous subsoil variant (Rs). Non-hydric soil units in the investigated area include urban land (Ur, 533) and Watseka loamy fine sand, 0 to 2 percent slopes (Wk). See **Appendix A, Exhibit 3** for a more detailed view of soil units within the environmental survey area.

A hydric soil is formed under conditions of saturation, flooding, or ponding of sufficient length during the growing season to develop anaerobic conditions in the upper part of the soil profile. Hydric soil is one of the three key components of a wetland, along with hydrophytic vegetation and hydrology.

**Table 2.2-2: Mapped Soils in Environmental Survey Area**

| Map Unit Symbol | Map Unit Name | Hydric Rating | Acres in Environmental Survey Area |
|---|---|---|---|
| Bn | Bono silty clay, 0 to 2 percent slopes | Hydric | 69.8 |
| Mm | Maumee loamy fine sand, 0 to 2 percent slopes | Hydric | 9.1 |
| Mo | Milford silt loam, overwash, 0 to 2 percent slopes | Hydric | 0.6 |
| PlB | Plainfield fine sand, 0 to 6 percent slopes | Non-hydric | 9.2 |
| Rs | Rensselaer loam, calcareous subsoil variant, 0 to 2 percent slopes | Hydric | 7.5 |
| Ur | Urban land | Non-hydric | 71.9 |
| Wk | Watseka loamy fine sand, 0 to 2 percent slopes | Non-hydric | 40.2 |
| 533 | Urban land | Non-hydric | 0.1 |

Source: NRCS 2017b.

#### *2.2.3.4 ADvanced IDentification (ADID) of Wetlands*

The ADvanced IDentification (ADID) program was designed to identify wetland sites that would be considered unsuitable for disposal of dredged or fill material or require special precautions because they are high-quality wetlands. The NWI-designated wetland east of wetlands W32 and W33 is also classified as an ADID wetland (**Appendix A**, **Exhibit 3**).

However, this wetland is outside of the environmental survey area.

#### *2.2.3.5 Flood Insurance Rate Maps for Lake County, Indiana*

The FEMA FIRM indicates that the environmental survey area intersects two mapped 100-year floodplain locations: where it crosses the Calumet River and where it crosses the Little Calumet River. **Appendix A, Exhibit 3** includes a more detailed view of FEMA floodways and floodplains in relation to the proposed Project. This exhibit also shows areas at reduced risk of flooding due to levees.

### 2.2.4 Field Methods

During the 2015 wetland surveys, right of entry could not be obtained for all properties. Therefore, surveyors delineated wetlands using two approaches, Approach A and Approach B, as described in **Section 2.2.4.1**. Property access was obtained for all properties during the 2017 follow-up surveys. Those wetlands not originally delineated under Approach A in 2015 were revisited in 2017, as discussed in **Section 2.2.4.2**.

#### *2.2.4.1 2015 Wetland Surveys*

##### *Approach A*

Approach A entailed a full delineation and was used on properties with approved and safe right of entry. Wetland delineations were conducted in accordance with the Section 404 guidelines in the 1987 Manual and 2010 Supplement. Using the three-parameter methodology, data pertaining to vegetation, soil, and hydrology were obtained. After each wetland delineation was complete, an inventory was made of all identifiable plant species in order to calculate a Floristic Quality Index (FQI) and mean coefficient of conservatism (Mean C).

A data observation point was chosen in a representative portion of the potential wetland to characterize the community. Observations of vegetation, soil, and hydrology were documented, and if wetland indicators were positive, an observation point was chosen in an adjoining upland area to establish the location of the wetland boundary. USACE wetland determination data forms documenting observations obtained at the data points can be found in **Appendix B**. Photographs were taken of each soil sample, of the surrounding vegetation community, and where possible, of an overview of each of the wetlands. Photographs of the wetlands and the environmental survey area are included in **Appendix C**. Wetland boundary information was transferred to aerial photographs to indicate the location and extent of the identified wetlands.

Wetland boundaries were surveyed in the field using a Trimble GeoExplorerXH Global Positioning System (GPS) unit. If wetlands extended outside of the environmental survey area, the boundary of the extended portion of the wetland was estimated using aerial photography.

*Wetland Vegetation*

At each data observation point, the plant community was assessed using the 1987 Manual and 2010 Supplement methodology to determine whether hydrophytic vegetation was dominant.

Nested circular sample plots of 5-foot, 15-foot, and 30-foot diameters were used to evaluate the herbaceous, sapling/shrub, and tree layers/vine, respectively. The wetland indicator status of each dominant species was used to determine whether the sample met the criterion for hydrophytic vegetation. The indicator status is a rating to determine if a species is hydrophytic based on its likelihood to be found in a wetland area. The rating for each species can be found in *The National Wetland Plant List* (Lichvar et al. 2016) and in *Plants of the Chicago Region* (Swink and Wilhelm 1994).

If the majority of dominant species were rated as wetland species, then the vegetation was considered hydrophytic.

#### *Wetland Soils*

Soil samples were augured up to 18 inches, or more if needed, to characterize wetland and upland soil conditions. Samples were examined by hand in the field to determine layers, matrix and redox features, and texture. Matrix and redox colors were classified using a Munsell color chart (Munsell Color 1994).

#### *Wetland Hydrology*

Hydrologic conditions were assessed by the presence or absence of wetland hydrology indicators such as evidence of inundation, drift lines, surface scour, watermarks, and sediment deposits. Any evidence of hydrological modification was noted.

#### *Floristic Quality Index (FQI)*

After each wetland delineation was complete, an inventory was made of all the identifiable plant species at each wetland to calculate an FQI and Mean C. The FQI metric was developed by Floyd Swink and Gerould Wilhelm to measure the natural area quality and degree of disturbance present in a vegetation community. The FQI relies on a value, represented by a number from 0 to 10, called the coefficient of conservatism (C Value), which has been assigned to each native plant species in the Chicago region. The value reflects a species' degree of fidelity to a high-quality natural community. For example, a very conservative species found in habitats with little disturbance is assigned a high C Value such as 9 or 10, while a very weedy species that is found in highly disturbed areas is assigned a low C Value such as 0 or 1. Non-native species are not given a rating because they are not originally part of any natural community.

The FQI calculation must be conducted for all wetlands as part of the delineation and Section 404 permitting requirements of the USACE Chicago District. USACE Chicago District considers a wetland community with a Mean C value of 3.5 or greater or an FQI of 20 or greater a high-quality aquatic resource. The FQI reports for the selected wetlands are included in **Appendix D**.

### *Approach B*

During the 2015 surveys, for properties where NICTD could not obtain right of entry or could not use the three-parameter methodology because of physical or safety access reasons, surveyors identified wetlands and estimated wetland boundaries based on a visual assessment from adjacent property. This approach is described as Approach B.

Approach B consisted of noting vegetation and hydrology from adjacent property; soil data and FQIs were not obtained. GPS points were taken along the wetland boundary as needed to determine the boundary extent. Field notes were taken describing the distance and direction

where the GPS points were taken from the actual wetland boundary. The points were uploaded to a mapping program and shifted by the direction and distance needed to reflect the actual wetland boundary. Wetland boundaries using this methodology were estimated based on the GPS point data and field notes. Aerial photography was used to supplement visual estimates, if necessary.

#### *2.2.4.2 Agricultural Land Assessment*

In the southern portion of the environmental survey area, near Seminary Drive and Sheffield Avenue in Munster, Indiana, the environmental survey area includes land that is under agricultural production and that includes mapped hydric soils. Often, wetlands on agricultural lands are difficult to identify using the USACE routine wetland determination methodology because agricultural practices can obscure or eliminate some wetland features. For the cultivated areas in the environmental survey area, surveyors followed USACE procedures for determining wetland areas on agricultural land, which require the use of time series aerial imagery review and wetland identification methods developed by NRCS. The NRCS mapping conventions follow the methodology of the National Food Security Act Manual (NFSAM), which addresses the special conditions of agricultural wetlands. The mapping conventions call for a comparison of at least 5 normal-rainfall years of aerial photos against aerial photos of 1 wet-rainfall year and 1 dry year, which are used as a reference to detect characteristic field signatures that indicate the presence of wetlands. The NFSAM standards require an area to have wetland signatures present in 3 years out of the 5 normal years to be considered a wetland. The USACE Chicago District Regulatory Branch has issued a regulatory bulletin with guidelines for using the NRCS NFSAM method (NRCS 2007, USACE n.d.).

**Appendix E** contains the aerial photos for years 1998, 2002, 2007, 2008, 2009, and 2012 that were used to detect field characteristics for the agricultural land investigation.

#### *2.2.4.3 2017 Follow-Up Surveys*

Surveyors conducted wetland delineations using the Approach A methodology outlined in **Section 2.2.4.1**. All updates in wetland boundaries are described in **Section 2.3.3**. Updates regarding wetland boundaries were approved by USACE in a Formal Boundary Concurrence Request dated June 23, 2017 (**Appendix F**).

#### *2.2.4.4 Wetland Delineation Exhibit*

In all instances, wetland data obtained via the Trimble GeoExplorer, aerial photography, and NWI maps were used to create an exhibit that includes an identifying code for each wetland. **Figure 2.3-1** provides an overview of wetland locations, and detailed exhibits are included in **Appendix A**.

## 2.3 Affected Environment

### 2.3.1 Surface Waters

#### *2.3.1.1 Little Calumet River*

The FEIS Preferred Alternative would cross the Little Calumet River south of I-80 in Indiana (**Figure 2.3-1**). The Little Calumet River's hydrologic unit code is 071200030305, and its reach code at this location is 071200030000174. According to *Indiana Draft 2016 Section 303(d) List of Impaired Waters* (IDEM 2016b), the Little Calumet River is impaired at this location due to chloride, dissolved oxygen, impaired biotic communities, polychlorinated biphenyls (PCBs), free cyanide, and nutrients (IDEM 2016b).

#### *2.3.1.2 Grand Calumet River*

The FEIS Preferred Alternative would cross the Grand Calumet River approximately 0.2 mile north of Plummer Avenue. The Grand Calumet River's hydrologic unit code is 071200030407, and its reach code is 07120003000188. The Grand Calumet River is considered a traditional navigable river by USACE and USEPA.

A letter from USFWS dated November 4, 2014 (provided in **Appendix F**) stated that the Grand Calumet River in Hammond has severely polluted sediments within both the West and East Branches. Restoration has been ongoing along various segments of the river. The portion of the West Branch between Hohman Avenue and the Indiana-Illinois state line will be remediated in the near future; remediation efforts will consist of dredging and capping the remaining sediments. USFWS advised that any construction activities that could compromise the integrity of the cap, including the placement of piers and abutments for a new railroad bridge, would be prohibited. Any bridge in this section of the river must be a clear span, with no piers or abutments within the river channel.

According to the *Indiana Draft 2016 Section 303(d) List of Impaired Waters*, the Grand Calumet River has impaired biotic communities and is impaired due to ammonia, dissolved oxygen, *Escherichia coli*, nutrients, and PCBs (IDEM 2016b). A letter from the Indiana Department of Natural Resources, dated November 10, 2014 (provided in **Appendix F)**, advised that the Grand Calumet River is one of the most contaminated rivers in the country due to a long history of chemical dumping and discharges prior to environmental regulations. The Grand Calumet River had contaminated sediments that averaged 8 to 10 feet in depth. Sediments in the West Branch of the Grand Calumet River, from Indianapolis Boulevard to the Indiana-Illinois state line, have been remediated through a combination of dredging/disposal and a 2-foot cap. Because of these remediation efforts, the placement of piers within the Grand Calumet River may not be permitted.

A letter from USEPA dated November 26, 2014 (provided in **Appendix F**) reiterated USFWS's concern with polluted sediments within the Grand Calumet River. This letter also requested avoidance of impacts on any remediation efforts and recommended spanning the river without piers or abutments placed in the river that could compromise the integrity of the sediment cap.

### 2.3.2 Wetlands

The 2015 and 2017 wetland surveys are described in this section. Twenty jurisdictional wetlands (1through 11 and 32 through 40) and two non-jurisdictional wetlands (12, 17) were identified in the environmental survey area. These wetlands are shown in **Figure 2.3-1** and are detailed in **Appendix A**. **Table 2.3-1** lists wetlands as they appear along the environmental survey area, from south to north, and not in numerical order. Since neither of the non-jurisdictional wetlands fall under the authority of USACE or IDEM, they are not included in wetland impacts for this Project and are excluded from the discussion below. The wetlands numbering scheme reflects the convention used in the DEIS when the environmental survey area was larger and there were more delineated wetlands.

#### *2.3.2.1 2015 Wetland Surveys*

Where parcel access allowed, surveyors delineated wetlands using the full delineation approach (Approach A) described in **Section 2.2.4.1**. In some cases, full boundary delineations using Approach A were not possible because of either right-of-entry issues or safety reasons. These wetlands were delineated from an adjacent parcel using Approach B, described in **Section 2.2.4.1**.

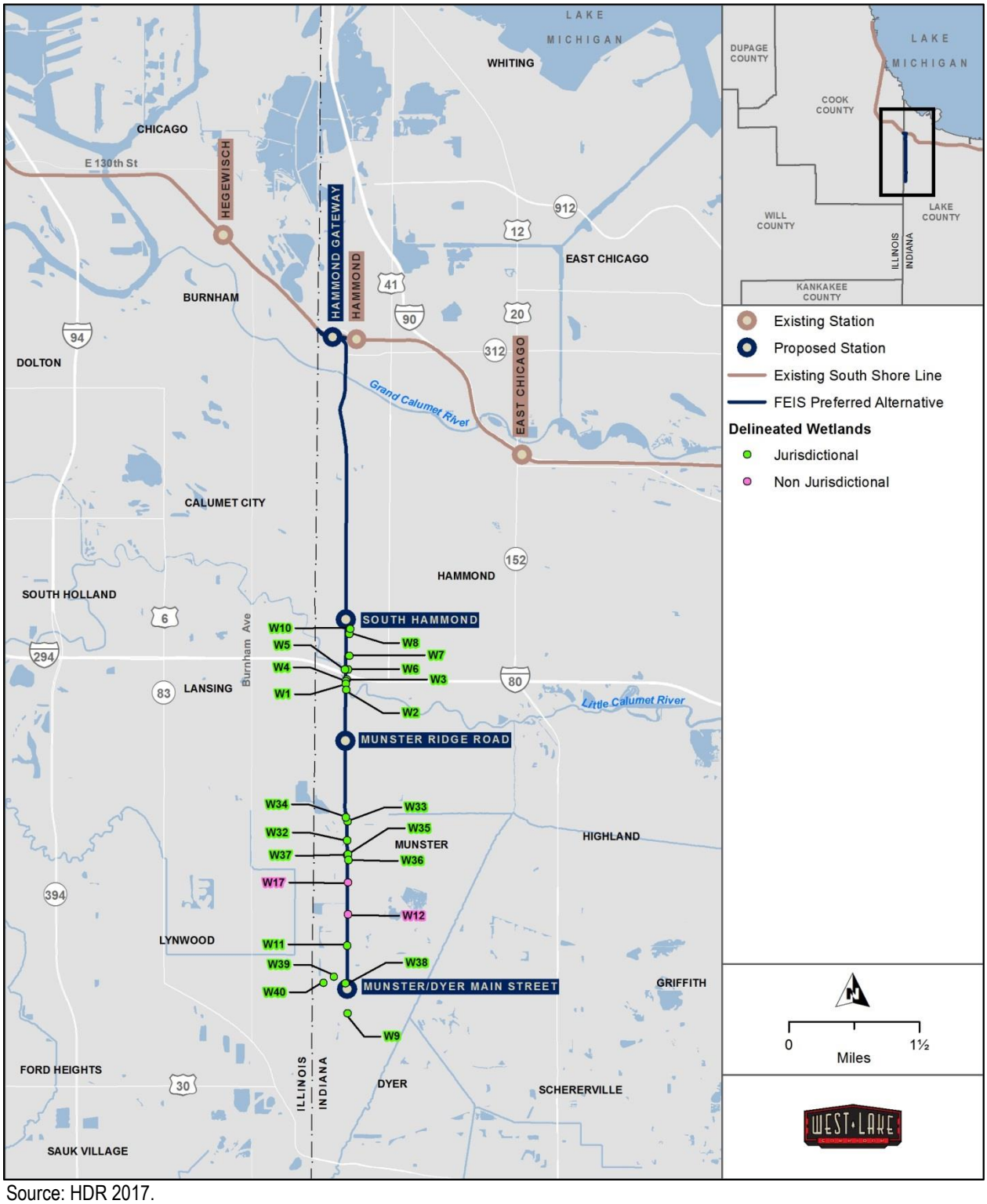
#### *2.3.2.2 2017 Follow-Up Surveys*

Surveyors revisited wetlands within the environmental survey area that were delineated in 2015 under Approach B and reevaluated them using Approach A. Boundaries were adjusted if needed.

Locations that had not been surveyed in 2015 due to design changes in the environmental survey area were also surveyed. No new wetlands were identified at these locations. However, the boundary at the southeast corner of wetland 4 was slightly expanded where the Project Area was widened to accommodate the connection of the Little Calumet River Trail to the Monon Trail.

Though part of the 2015 survey, the area to the south of wetland 34 along the Monon Railroad Tracks exhibited hydrophitic vegetation, hydric soils, and wetland hydrology in 2017. Wetland 34 was expanded to include this area.

**Figure 2.3-1: Overview of Wetlands in Environmental Survey Area**




Source: HDR 2017.

**Table 2.3-1: Summary of Wetlands in the Environmental Survey Area**

| Wetland[a] | Location | Wetland Type | Cowardin Class[b] | Size in Environmental Survey Area (acres) | Permanent Impacts (acres) | Temporary Impacts (acres) | Total Impacts (acres)[c,d] | Soil Map Unit Name/Hydric Rating | 2015 Approach | 2015 Mean C/ FQI[e] | 2017 Mean C/ FQI[e] | Dominant Plant Species | HQAR? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | West of Sheffield Avenue and south of Main Street at rail crossing (Dyer) | Wet prairie with shrubs | PFO | 0.968 | 0 | 0 | 0 | Bono silty clay Hydric | A | 2.82/11.64 | 3.53/19.35 | *Sambucus nigra, Frangula alnus, Lythrum salicaria* | Yes |
| 40 | West of rail, north of Seminary Drive (Munster) | Wet prairie | PEM | 0.256 | 0 | 0 | 0 | Bono silty clay Hydric | A | 2.33/5.72 | _ | *Lythrum salicaria, Salix interior* | No |
| 39 | West of rail, north of Seminary Drive (Munster) | Forested wetland ditch | PFO | 0.046 | 0.041 | 0 | 0.046 | Bono silty clay Hydric | A | 1.80/4.02 | 1.83/8.98 | *Phragmites australis, Salix interior, Salix fragilis* | No |
| 38 | West of rail near Sheffield Avenue crossing (Munster) | Ditch forested wetland and sedge meadow ditch | PFO | 0.302 | 0.287 | 0 | 0.302 | Bono silty clay Hydric | A | 2.06/8.25 | 3.03/17.41 | *Phragmites australis, Salix interior, Cornus stolonifera, Equisetum arvense, Acer saccharinum, Prunus serotina, Populus deltoides, Rubus occidentalis* | No |
| 11 | East of rail near edge of subdivision south of Otis Bowen Drive (Munster) | Ditch wetland | PEM | 0.070 | 0.039 | 0.030 | 0.070 | Bono silty clay Hydric | B | _ | 2.33/7.00 | *Phragmites australis* | No |
| 12 | East of rail, south of Superior Avenue (Munster) | Bioretention basin | PEM | 0.947 | 0.194 | 0.057 | 0.251 | Bono silty clay Hydric | A | 2.15/7.77 | 2.81/12.87 | *Phragmites australis* | No |
| 17 | Retention basin wetland (Munster) | Retention basin wetland | PEM | 1.416 | 0.476 | 0.035 | 0.511 | Rensselaer loam, calcareous subsoil variant/ Bono silty clay Hydric | B | 2.22/6.67 | 2.22/6.67 | *Phragmites australis, Lythrum salicaria* | No |
| 36 | East or rail, north of 45th Street (Munster) | Sedge meadow | PEM | 0.107 | 0.005 | 0 | 0.005 | Rensselaer loam, calcareous subsoil variant Hydric | A | 3.00/9.00 | – | *Populus deltoides, Typha angustifolia, Phragmites australis, Rubus occidentalis* | No |
| 37 | West of rail, north of 45th Street (Munster) | Sedge meadow/wooded wetland | PFO | 0.340 | 0.183 | 0.038 | 0.340 | Rensselaer loam, calcareous subsoil variant Hydric | B | _ | 1.95/6.52 | *Salix interior, Cornus stolonifera, Typha angustifolia, Vitis riparia, Fraxinus pennsylvanica subintegerrima* | No |
| 35 | East of rail, north of 45th Street (Munster) | Sedge meadow | PEM | 0.042 | 0 | 0 | 0 | Rensselaer loam, calcareous subsoil variant Hydric | B | _ | 1.56/4.67 | *Salix interior, Populus deltoides, Cornus stolonifera, Fraxinus pennsylvanica subintegerrima, Typha angustifolia, Vitis riparia* | No |
| 32 | East of rail, south of Fisher Street (Munster) | Sedge meadow and forested wetland ditch | PEM | 1.423 | 0.878 | 0 | 1.423 | Rensselaer loam, calcareous subsoil variant Hydric | B | _ | 1.00/1.73 | *Populus deltoides, Rhamnus frangula, Salix interior, Phragmites australis* | No |

| Wetland[a] | Location | Wetland Type | Cowardin Class[b] | Size in Environmental Survey Area (acres) | Permanent Impacts (acres) | Temporary Impacts (acres) | Total Impacts (acres)[c,d] | Soil Map Unit Name/Hydric Rating | 2015 Approach | 2015 Mean C/ FQI[e] | 2017 Mean C/ FQI[e] | Dominant Plant Species | HQAR? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | East of rail, south of Fisher Street (Munster) | Sedge meadow ditch | PEM | 0.263 | 0.060 | 0 | 0.060 | Maumee loamy fine sand Hydric | A | 2.25/6.36 | 2.09/6.93 | *Phragmites australis, Populus deltoides* | No |
| 34 | West of rail, south of Fisher Street (Munster) | Sedge meadow | PFO | 0.480 | 0.052 | 0.069 | 0.121 | Maumee loamy fine sand Hydric | A | 2.91/9.65 | 2.87/11.10 | *Phragmites australis, Lythrum salicaria, Cornus stolonifera, Frangula alnus, Geum laciniatum trichocarpum* | No |
| 2 | South of river at Monon Trail Bridge (Munster) | Wet meadow; wooded wetland | PFO | 0.080 | 0.040 | 0 | 0.080 | Bono silty clay Hydric | A | 3.13/12.14 | – | *Phalaris arundinacea, Parthenocissus quinquefolia, Vitis riparia, Fraxinus pennsylvanica subintegerrima, Acer negundo, Quercus macrocarpa, Ulmus rubra* | No |
| 1 | Immediately south of river at Monon Trail Bridge (Munster) | Emergent, riparian | PEM | 0.136 | 0.094 | 0.011 | 0.136 | Bono silty clay Hydric | A | 2.15/7.77 | – | *Persicaria lapathifolium, Phalaris arundinacea, Ipomoea hederacea* | No |
| 4 | East side of Monon Trail, north of river, south of interstate (Munster) | Floodplain forest | PFO | 0.145 | 0.127 | 0.017 | 0.145 | Bono silty clay Hydric | A | 1.50/4.74 | – | *Lysimachia nummularia, Phragmites australis, Acer negundo, Fraxinus pennsylvanica* | No |
| 3 | Immediately north of river at Monon Trail Bridge (Hammond) | Emergent, riparian | PEM | 0.073 | 0.073 | 0 | 0.073 | Bono silty clay Hydric | A | 1.59/6.55 | – | *Persicaria lapathifolia, Helianthus tuberosus, Phalaris arundinacea, Symphyotrichum pilosum, Eupatorium serotinum, Sambucus nigra* | No |
| 5 | Immediately north of interstate at Monon Trail (Hammond) | Sedge meadow | PEM | 0.063 | 0.048 | 0 | 0.063 | Watseka loamy fine sand Non-hydric | A | 2.22/9.43 | – | *Phragmites australis, Fraxinus pennsylvanica subintegerrima, Acer negundo, Populus deltoides* | No |
| 6 | Immediately north of interstate at Monon Trail (Hammond) | Eastern forested wetland | PFO | 0.012 | 0 | 0 | 0 | Watseka loamy fine sand Non-hydric | A | 2.29/9.46 | – | *Impatiens capensis, Crataegus mollis, Ulmus americana, Fraxinus pennsylvanica subintegerrima* | No |
| 7 | East of Monon Trail at 174th Street (Hammond) | Sedge meadow with forested wetland edge | PEM | 0.656 | 0.656 | 0 | 0.656 | Watseka loamy fine sand Non-hydric | A | 2.26/9.86 | – | *Lythrum salicaria, Salix interior, Populus deltoides, Fraxinus pennsylvanica subintegerrima, Phragmites australis* | No |
| 10 | North of 173rd Street and east of Lyman Avenue (Hammond) | Sedge meadow with forested wetland edge | PEM | 0.173 | 0 | 0 | 0 | Watseka loamy fine sand Non-hydric | A | 1.95/8.95 | 2.48/16.05 | *Lythrum salicaria, Fraxinus pennsylvanica subintegerrima, Populus deltoides* | No |
| 8 | North of 173rd Street and east of Lyman Avenue (Hammond) | Sedge meadow edges with forested wetland center | PFO | 0.322 | 0 | 0 | 0 | Watseka loamy fine sand Non-hydric | A | 1.95/8.95 | 2.48/16.05 | *Lythrum salicaria, Fraxinus pennsylvanica subintegerrima, Populus deltoides* | No |

Sources: NICTD 2016; HDR 2017.

[a] Wetlands are ordered from south to north.

[b] The Cowardin classification system is a widely used ecological classification system for wetlands and provides a consistent definition useful in inventorying and mapping wetlands (Cowardin et al. 1975). PEM = Palustrine emergent; PFO = Palustrine forested

[c] Total impacts may slightly differ from the sum of permanent and temporary impacts due to rounding.

[d] It was assumed that the entire wetland would be impacted when total impacts were equivalent to 50% or greater of the entire wetland area. Where this is the case, total impacts may be greater than the sum of the permanent and temporary impacts.

[e] Mean C (native species) and FQI (native species) based on Chicago Region FQA Calculator 2016 Update (Herman et al. 2013), as provided by USACE Chicago District.

### 2.3.3 Wetland Areas with Descriptions of Soils and Hydrology

USACE advised, in its letter dated July 29, 2016, that wetlands 1 through 11, and 32 through 40 are jurisdictional under the CWA due to their proximity to the Little Calumet River. USACE also advised that wetlands 12 and 17 are not jurisdictional under the CWA because they were created as stormwater detention facilities and are exempt from CWA regulations (33 CFR Part 328.3) (see **Appendix F**). In addition, stormwater detention facilities are exempt from Indiana's Isolated Wetlands Law because they are human-made bodies of surface water created by excavation to retain water (327 Indiana Administrative Code 17).

All jurisdictional and non-jurisdictional wetlands within the environmental survey area are not considered high quality aquatic resources under USACE Chicago District guidelines with the exception of wetland 9.

The wetland descriptions that follow are from the 2015 wetland surveys; descriptions from the 2017 wetland surveys for wetlands 11, 35, 37, 32, 34, and 4 are included as applicable. Wetlands are labeled using the naming convention determined in the DEIS and listed as they appear along the environmental survey area from south to north.

#### *2.3.3.1 Wetland 9*

The vegetative community is dominated by elderberry (*Sambucus nigra*), glossy false buckthorn (*Frangula alnus*), and purple loosestrife (*Lythrum salicaria*). The mapped soil is hydric Bono silty clay. The soil was hydric due to the presence of a redox dark surface. The main indicators of hydrology were geomorphic position and a FAC-neutral test.

The upland data point confirmed the mapped hydric soil, Bono silty clay. Despite the mapped hydric designation, there were no indications of hydric soil or of wetland hydrology.

#### *2.3.3.2 Wetland 40*

The vegetative community is dominated by purple loosestrife (*Lythrum salicaria*) and sandbar willow (*Salix interior*). The soils investigation did not confirm the mapped soils as Bono silty. Instead the soils were found to be sandy clay. Soils were hydric due to being a thick dark surface. The wetland hydrology indicators were iron deposits, recent iron reduction in tilled soils, surface soil cracks, drainage patterns, and a FAC-neutral test.

The upland data point confirmed the mapped hydric soil, Bono silty clay. Despite the mapped hydric designation, there were no indications of hydric soil or of wetland hydrology.

#### *2.3.3.3 Wetland 39*

The vegetative community is dominated by crack willow (*Salix fragilis*), sandbar willow (*Salix interior*), and common reed (*Phragmites australis*).The soils investigation did not confirm the mapped soil as Bono silty clay. Instead the soil was found to be loamy sand. The soil was hydric due to being depleted below a dark surface. The wetland hydrology indicators were a high water table, saturation, sediment deposits, drainage patterns, and geomorphic position.

The upland data point confirmed the mapped hydric soil, Bono silty clay. Despite the mapped hydric designation, there were no indications of hydric soil or of wetland hydrology in the upland data point. Hydrophytic vegetation was not present.

### 2.3.3.4 Wetland 38

The vegetative community is dominated by sugar maple (*Acer saccharinum*), Eastern cottonwood (*Populus deltoides*), black cherry (*Prunus serotina*), common reed (*Phragmites australis*), redosier dogwood (*Cornus stolonifera*), field horsetail (*Equisetum arvense*), black raspberry (*Rubus occidentalis*) and sandbar willow (*Salix interior*). The soils investigation did not confirm the mapped soil as Bono silty clay. Instead, the soil was found to be loamy sand. The soil was hydric due to being depleted below a dark surface. The wetland hydrology indicators were a high water table, saturation, sediment deposits, drainage patterns, and geomorphic position.

The upland data point confirmed the mapped hydric soil, Bono silty clay. Despite the mapped hydric designation, there were no indications of hydric soil or of wetland hydrology in the upland data point. Hydrophytic vegetation was not present.

### 2.3.3.5 Wetland 11

The vegetative community is dominated by common reed (*Phragmites australis*). Data points for wetland and upland soils and for hydrology were not obtained because the wetland location was primarily on property where right of entry was denied. The mapped soil for the area was hydric Bono silty clay.

The wetland boundary delineated in 2015 using Approach B was refined during the 2017 follow-up survey. Mean C and FQI data were collected. A soil sample was not taken because of standing water. An upland data point for soils and hydrology could not be obtained.

### 2.3.3.6 Wetland 12

The vegetative community is dominated by common reed (*Phragmites australis*). The mapped soil for this area is hydric Bono silty clay. The soil was hydric due to the presence of a loamy gleyed matrix. The sample was restricted to the top 8 inches of soil due to a restrictive gravel layer. The main indicators of wetland hydrology were surface water, a high water table, saturation, and drainage patterns.

The upland data point was also mapped as Bono silty clay and showed evidence of redox concentrations; however, the soils were determined to be too highly disturbed to serve as an indicator of wetland/upland soils. There were no signs of wetland hydrology.

### 2.3.3.7 Wetland 17

The vegetative community is dominated by common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). Wetland and upland soils and hydrology data points were not obtained because property right of entry was denied. The mapped soils for the area were Renssalaer loam, calcareous subsoil variant or Bono silty clay.

### 2.3.3.8 Wetland 36

The vegetative community is dominated by common reed (*Phragmites australis*), Eastern cottonwood (*Populus deltoides*), narrow-leaf cattail (*Typha angustifolia*), and black raspberry (*rubus occidentalis*). A soil sample was not taken because of standing water. The mapped soils for the area were Rensselaer loam, calcareous subsoil variant. The wetland hydrology indicators were surface water and saturation. An upland data point for soils and hydrology could not be obtained.

### 2.3.3.9 Wetland 37

The vegetative community is dominated by sandbar willow (*Salix interior*), redosier dogwood (*Cornus stolonifera*), green ash (*Fraxinus pennsylvanica*), narrow-leaf cattail (*Typha angustifolia*), and river-bank grape (*Vitis riparia*). Data points for wetland and upland soils and for hydrology were not obtained because right of entry was denied. The mapped soils for the area were Rensselaer loam, calcareous subsoil variant.

The wetland delineated in 2015 using Approach B was reduced during the 2017 follow-up survey and split into two: 37L and 37R. The wetland is split along the old rail line. A soil sample was not taken because of standing water. An upland data point for soils and hydrology could not be obtained.

### 2.3.3.10 Wetland 35

The vegetative community is dominated by sandbar willow (*Salix interior*), Eastern cottonwood (*Populus deltoides*), redosier dogwood (*Cornus stolonifera*), green ash (*Fraxinus pennsylvanica subintegerrima*), narrow-leaf cattail (*Typha angustifolia*), and river-bank grape (*Vitis riparia*). Data points for wetland and upland soils and for hydrology were not obtained because right of entry was denied. The mapped soils for the area were Rensselaer loam, calcareous subsoil variant.

The wetland boundary delineated in 2015 using Approach B was confirmed in the follow-up survey in 2017. A soil sample was not taken because of standing water. An upland data point for soils and hydrology could not be obtained. This wetland is bound by graded roads within the environmental survey area.

### 2.3.3.11 Wetland 32

The vegetative community is dominated by Eastern cottonwood (*Populus deltoides*), glossy false buckthorn (*Rhamnus frangula*), sandbar willow (*Salix interior*), and common reed (*Phragmites australis*). Data points for wetland and upland soils and for hydrology were not obtained because radio frequency fields at this site exceeded Federal Communications Commission rules for human exposure. The mapped soils for the area were Rensselaer loam, calcareous subsoil variant.

During the 2017 follow-up survey, it was noted that portions of this wetland have been filled with gravel and debris since the 2015 survey. In addition, a graded gravel road runs parallel to the west edge of the wetland. USACE Chicago District is aware of this situation. The wetland boundary was updated to exclude the graded road along the west edge.

### 2.3.3.12 Wetland 33

The vegetative community is dominated by Eastern cottonwood (*Populus deltoides*) and common reed (*Phragmites australis*). The soils investigation confirmed the mapped soil, Maumee loamy fine sand. The soil was hydric due to the presence of a depleted dark surface. The wetland hydrology indicators were saturation and sparsely vegetated concave surface. An upland data point for soils and hydrology could not obtained.

### 2.3.3.13 Wetland 34

The vegetative community is dominated by common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), redosier dogwood (*Cornus stolonifera*), glossy false buckthorn (*Frangula alnus*), rough avens (*Geum laciniatum trichocarpum*). The soils investigation

confirmed the mapped hydric soil, Maumee loamy fine sand. The soil was hydric due to the presence of a depleted dark surface. The wetland hydrology indicators were saturation and sparsely vegetated concave surface. An upland data point for soils and hydrology could not be obtained.

Though originally delineated using Approach A, surveyors expanded the south wetland boundary in the 2017 follow-up survey. The updated wetland boundary was submitted to USACE in a Formal Boundary Concurrence Request and approved on August 25, 2017 (**Appendix F**).

The soils investigation confirmed the mapped soil, Maumee loamy fine sand. The soil was hydric due to the presence of a depleted dark surface. The wetland hydrology indicators were saturation and sparsely vegetated concave surface. An upland data point for soils and hydrology could not be obtained.

#### *2.3.3.14 Wetland 2*

The vegetative community is dominated by burr oak (Quercus macrocarpa), river-bank grape (*Vitis riparia*), slippery elm (*Ulmus rubra*), boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), Virginia creeper (*Parthenocissus quinquefolia*), and reed canary grass (*Phalaris arundinacea*). The mapped soil for this area is hydric Bono silty clay. Field investigations confirmed that soil at the site is hydric due to the presence of depletion below a dark surface. The main indicators of wetland hydrology were water marks and a sparsely vegetated concave surface.

The upland data point also showed evidence of hydric soil, with 3 percent of redox concentrations leading to a preliminary classification of redox dark surface. However, the presence of rock and asphalt indicated highly disturbed soil. Hydrophytic vegetation was present. There were no signs of wetland.

#### *2.3.3.15 Wetland 1*

The vegetative community is dominated by dock-leaf smartweed (*Persicaria lapathifolia*), ivy-leaf morning glory (*Ipomea hereracae*) and reed canary grass (*Phalaris arundinacea*). The mapped soil for this area is hydric Bono silty clay. Field investigations confirmed that soil at the site is hydric due to the presence of a redox dark surface. The main indicators of wetland hydrology were sediment deposits and drainage patterns.

The upland data point also showed evidence of hydric soil, with 3 percent of redox concentrations leading to a preliminary classification of redox dark surface. However, the presence of rock and asphalt indicated highly disturbed soil. Hydrophytic vegetation was present. There were no signs of wetland hydrology in the upland data point.

#### *2.3.3.16 Wetland 4*

The vegetative community is dominated by green ash (*Fraxinus pennsylvanica*), boxelder (*Acer negundo*), creeping Jenny (*Lysimachia nummularia*), and common reed (*Phragmites australis*). The mapped soil for this area is hydric Bono silty clay. Field investigations confirmed that the soil was hydric due to the presence of a redox dark surface. The main indicator of wetland hydrology was a high water table.

An upland data point for soils could not be obtained because of the large amount of gravel and debris in the soil. There were no indicators of wetland hydrology in the upland data point.

Though originally delineated using Approach A, the Project footprint was expanded at this location after the 2015 survey to accommodate the connection of the Monon Trail with the Little Calumet River Trail. The updated wetland boundary was submitted to USACE in a Formal Boundary Concurrence Request and approved on August 25, 2017 (**Appendix F**).

#### *2.3.3.17 Wetland 3*

The vegetative community is dominated by black elder (*Sambucus nigra*), reed canary grass (*Phalaris arundinacea*), dock-leaf smartweed (*Persicaria lapathifolia*), white oldfield American aster (*Symphyotrichum pilosum*), Jerusalem artichoke (*Helianthus tuberosus*), and late flowering thoroughwort (*Eupatorium serotinum*). The mapped soil for this area is hydric Bono silty clay. Field investigations confirmed that soil at the site is hydric due to the presence of a redox dark surface. The main indicators of wetland hydrology were sediment deposits and drainage patterns. The sample was taken approximately 5 feet from the edge of the river bank.

An upland data point for soils could not be obtained because of the large amount of gravel and debris in the soil. There were no indicators of wetland hydrology in the upland data point.

#### *2.3.3.18 Wetland 5*

The vegetative community is dominated by Eastern cottonwood (*Populus deltoides*), boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), and common reed (*Phragmites australis*). The mapped soil for this area is non-hydric Watseka loamy fine sand. Although typically non-hydric field investigations indicated that soil at the site is hydric due to the presence of a depleted matrix. The main indicator of wetland hydrology was saturation.

The upland data point confirmed the mapped non-hydric soil. There were no indications of hydric soil or of wetland hydrology in the upland data point. Hydrophytic vegetation was present.

#### *2.3.3.19 Wetland 6*

The vegetative community is dominated by downy hawthorn (*Crataegus mollis*), green ash (*Fraxinus pennsylvanica*), spotted touch-me-not (*Impatiens capensis*) and American elm (*Ulmus americana*). The mapped soil for this area is non-hydric Watseka loamy fine sand. Although typically non-hydric, field investigations indicated that soil at the site is hydric due to the presence of a depleted dark surface. The main indicators of wetland hydrology were sparsely vegetated concave surfaces, aquatic fauna, and surface soil cracks. Hydrophytic vegetation was present.

The upland data point confirmed the mapped non-hydric soil. There were no indications of hydric soil or of wetland hydrology in the upland data point. Hydrophytic vegetation was present.

#### *2.3.3.20 Wetland 7*

The vegetative community is dominated by sandbar willow (*Salix interior*), Eastern cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), common reed (*Phragmites australis*), and purple loosestrife (*lythrum salicaria*). The soils investigation confirmed the mapped non-hydric soil, Watseka loamy fine sand. Although typically a non-hydric soil, the soil was hydric due to the presence of a stripped matrix. The main indicators of wetland hydrology were geomorphic position and a FAC-neutral test.

The upland data point confirmed the mapped non-hydric soil, Watseka loamy fine sand. There were no indications of hydric soil or of wetland hydrology in the upland data point.

Hydrophytic vegetation was present.

#### *2.3.3.21 Wetland 10*

The vegetative community is dominated by purple loosestrife (*Lythrum salicaria*), green ash (*Fraxinus pennsylvanica subintegerrima*), and Eastern cottonwood (*Populus deltoides*). The mapped soil for this area is Watseka loamy fine sand. Although typically a non-hydric soil, the soil was hydric due to the presence of a stripped matrix. The main indicators of hydrology were geomorphic position and sediment deposits.

The upland data point confirmed the mapped non-hydric soil, Watseka loamy fine sand. There were no indications of hydric soil or of wetland hydrology. Hydrophytic vegetation was present.

#### *2.3.3.22 Wetland 8*

The vegetative community is dominated by purple loosestrife (*Lythrum salicaria*), green ash (*Fraxinus pennsylvanica subintegerrima*), and Eastern cottonwood (*Populus deltoides*). The mapped soil for this area is Watseka loamy fine sand. Although typically a non-hydric soil, the soil was hydric due to the presence of a stripped matrix. The main indicators of hydrology were geomorphic position and sediment deposits.

The upland data point confirmed the mapped non-hydric soil, Watseka loamy fine sand. There were no indications of hydric soil or of wetland hydrology. Hydrophytic vegetation was present.

### 2.3.4 Agricultural Land

In the southern portion of the environmental survey area, near Seminary Drive and Sheffield Avenue in Munster, Indiana, the Project includes land that is under agricultural production and that includes mapped hydric soils. Six years of aerial photographs of the subject properties were examined. The years 1998, 2007, 2008, 2009, and 2012 were normal rainfall years in Munster. The wet rainfall year examined was 2002.

Examination of the aerial imagery review determined that the agricultural land did not contain locations that meet the standard for farmed wetlands because only 1 out of 5 normal rainfall years showed wetland indicators. **Appendix E** contains the aerial photos used to detect field characteristics for the agricultural land assessment.

# 3 Results

Under the No Build Alternative, no Project-related impacts on water resources would occur.

The FEIS Preferred Alternative would cross the Little Calumet River on a new through-girder bridge. The bridge would be designed to clear span the river. The FEIS Preferred Alternative would cross the Grand Calumet River on a new bridge where it is impaired by a variety of contaminants. The bridge would be designed to clear span the river, with no piers or abutments in the river channel. The FEIS Preferred Alternative considers wetland impacts for those wetlands in the environmental survey area that are considered jurisdictional at a federal or state level. Wetlands 12 and 17 (**Figure 2.3-1**) are human-made bioretention areas that are non-jurisdictional and are not regulated by federal or state government. Impacts on non-jurisdictional wetlands are shown in **Table 2.3-1**, but are not included in the \wetland impact calculations for mitigation.

Approximately 14 jurisdictional wetlands totaling 3.43 acres would be affected by filling with soil and ballast rock for the track, stations, parking lots, service roads, and temporary construction access (**Table 2.3-1**). The majority of the wetlands are highly disturbed and none are considered to be high-quality aquatic resource wetlands.

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# 4 Mitigation

## 4.1 Long-term Operating Effects

The No Build Alternative would not result in any direct impacts on water resources and, therefore, would not require mitigation.

The FEIS Preferred Alternative would follow guidelines and regulations outlined by USACE and INDNR.

USEPA has provided guidelines related to the CWA, which include choosing the least environmentally damaging practicable alternative (minimizing impacts), prohibiting the causing or contributing to significant degradation of waters, and minimizing and mitigating unavoidable impacts on waters of the United States and wetlands. The Project would not affect the integrity of the soil cap separating contaminated river sediments from surface water in the West Branch of the Grand Calumet River in Hammond.

In accordance with INDNR (Engineer Regulation 17897) guidelines, the Project would use existing structures for stream crossings where possible, thereby minimizing impacts on surface waters and wetlands. By complying with these guidelines, impacts on surface waters because of scouring and impacts on aquatic organisms would be minimized.

Because the Project would potentially affect more than 1 acre of wetlands, a USACE Section 404 Individual Permit and a Section 401 Water Quality Certification from IDEM would be required. In the NEPA concurrence letter dated January 9, 2018 (**Appendix F**), USACE stated that jurisdictional palustrine emergent wetlands would be required to be mitigated at a minimum 1.5:1 ratio, and jurisdictional palustrine forested wetlands would need to be mitigated at a 3:1 ratio. Based on these mitigation ratios, a minimum of 6.56 acres of wetland mitigation would be provided to ensure no net loss of wetlands The Section 401 Water Quality Certification would confirm that the Project complies with Indiana's water quality standards and, therefore, maintains the integrity of existing waterways.

NICTD would purchase wetland mitigation bank credits from established and approved off-site mitigation sponsors in accordance with the applicable USACE and INDNR requirements prior to construction of the Project. To mitigate impacts on wetlands, NICTD is considering two off-site mitigation sponsors near the Project, as well as the proposed in-lieu-fee program for the state of Indiana. These options are, discussed in greater detail below.

### 4.1.1 Shirley Heinze Land Trust

The Shirley Heinze Land Trust has indicated, through a Letter of Intent (see **Appendix F**), its interest in the perpetual protection of a 50-acre property (Property) in Pine Township, Porter County. The Property falls within the East Branch of the Little Calumet River corridor that was designated by INDNR as a Conservation Area in 2014. As a result, the Shirley Heinze Land Trust and other conservation partners have been able to protect over 400 acres in the area.

Mitigation associated with the Project's wetland impacts could be accommodated through the acquisition of this Property, which contains approximately 10 acres of forested wetlands and 40 acres of agricultural land that would be enhanced and restored, either as a part of mitigation or through funding that would be pursued by Shirley Heinze Land Trust following permanent protection of the Property. As part of the mitigation, the Shirley Heinze Land Trust would be committed to undertaking the required 5 years of monitoring and maintenance, with funding

provided by NICTD. After the initial 5 years, Shirley Heinze Land Trust would be committed to protecting the work done in perpetuity.

### 4.1.2 Oak Ridge Prairie County Park

Lake County Parks has expressed interest in mitigating wetland impacts on its land through a Letter of Intent (**Appendix F**). Lake County Parks and its consultant EcoLogic Planning, Inc., have outlined a schedule of completion for a 106-acre mitigation bank at Oak Ridge Prairie County Park. Site management would begin in 2018 and would continue through 2023 until performance standards are met. Mitigation credits would be available for purchase in late 2018 into 2019.

Oak Ridge Prairie County Park is within the Lake Michigan Watershed. It is currently farmland that exhibits hydric soils and a high water table. Soil and hydrology characteristics as well as close proximity to many high-quality wetland communities make Oak Ridge Prairie County Park an ideal wetland mitigation bank. Additionally, this mitigation bank would provide excellent habitat for several federal- or state-listed species including the evening bat, eastern red bat, Franklin's ground squirrel, Blanding's turtle, northern leopard frog, rough greensnake, least bittern, whooping crane, Henslow's sparrow, sedge wren, greater yellowlegs, eastern meadowlark, black and white warbler, blue-winged teal, and American wigeon.

### 4.1.3 Indiana Stream and Wetland Mitigation Program

INDNR is proposing to sponsor the Indiana Stream and Wetlands Mitigation Program, a statewide in-lieu fee program, to provide an additional compensatory mitigation option to permittees. As with mitigation banks, permittees can buy compensatory mitigation credits from the sponsor. These funds can be accumulated to establish or restore large ecologically valuable stream or wetland habitat within the watershed where impacts occur. As part of the mitigation, INDNR would be responsible for the required 5 years of monitoring and maintenance.

INDNR is moving forward with the final stages of program approval, having recently submitted the Final Instrument to USACE and the Interagency Review Team and foresees program approval by the end of 2017. Advanced credits would be available for purchase after program approval.

## 4.2 Short-term Construction Effects

The No Build Alternative would not have any short-term construction impacts on water resources and, therefore, would not require mitigation.

The FEIS Preferred Alternative would minimize impacts on surface waters and wetlands such as the addition of fill material or increased sediment loads through the implementation of BMPs and erosion and sediment control plans which would be developed as part of the Section 404 Individual Permit and associated Section 401 Water Quality Certification and local and state requirements. Erosion and sediment control plans would be included with the contract drawings to prevent or reduce the displacement of soil and other sediments via stormwater runoff within the land development area.

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# Appendix A. Exhibits

# Exhibit 1: Location Map

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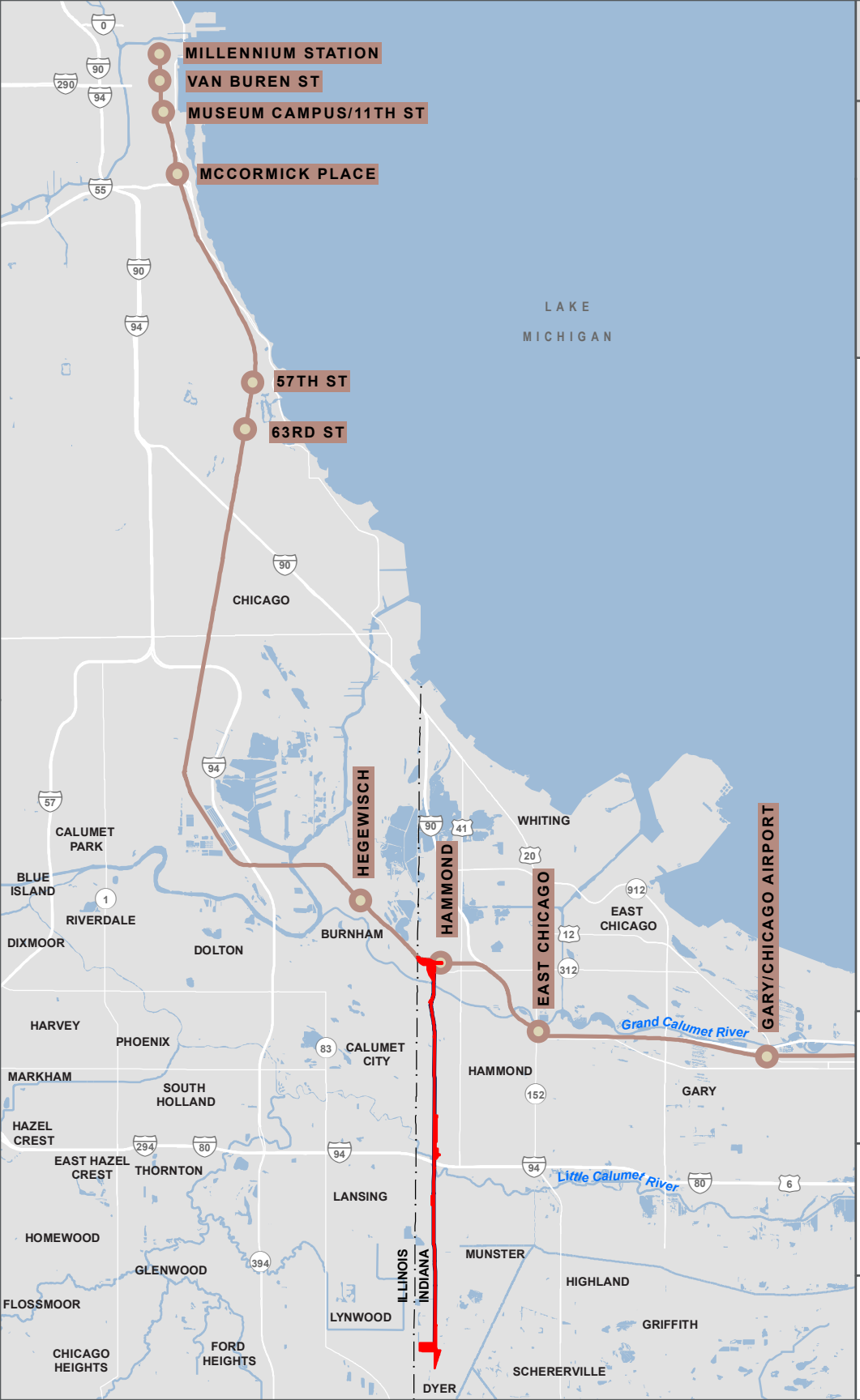


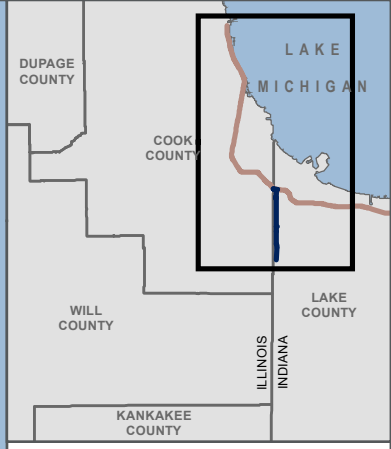


- Existing Station
- Existing South Shore Line
- FEIS Preferred Alternative
- Environmental Survey Area

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 1: LOCATION MAP

0 3 Miles

# Exhibit 2: USGS Topographic Map

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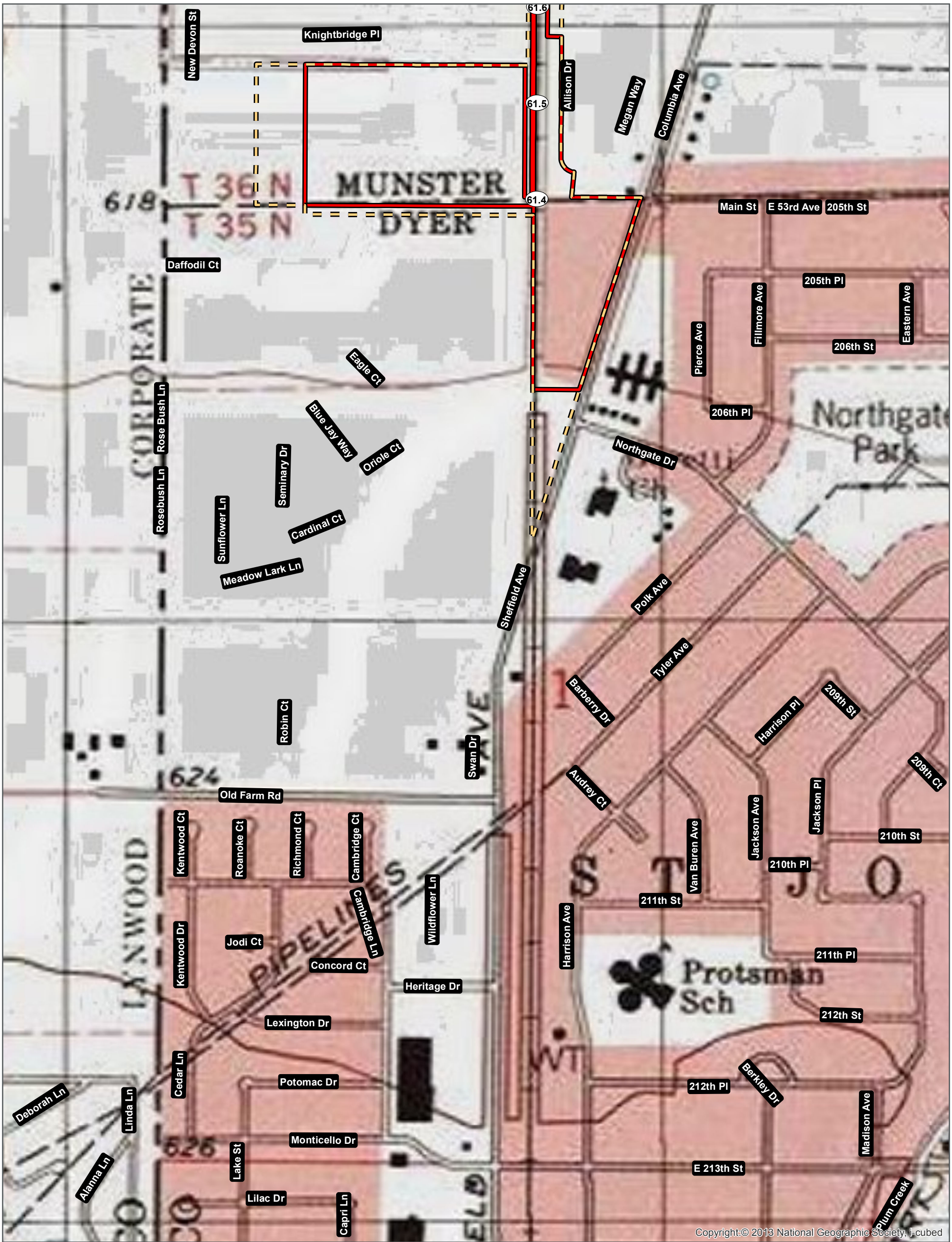
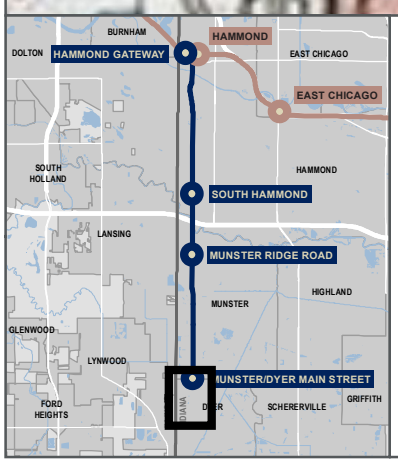



Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 2: USGS TOPO MAP

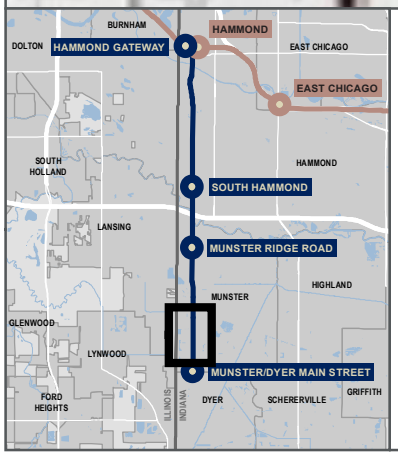
0 500
FEET

WEST LAKE CORRIDOR

SHEET 1 OF 7

Data for Reference Only

Glenwood Lansing Rd
UNICIPAL
616
615
620
62.8
62.7
62.6
62.5
62.4
62.3
62.2
62.1
62
61.9
61.8
61.7
Kennedy Ct
45th St
Maynard
Radio
Tower
Superior Ave
Margo Ln
Glastonbury St
Indiana Pkwy
Valparaiso Dr
Milford Haven Way
Banbury Pl
Leicester Dr
Progress Ave
Columbia Ave
Salisbury Dr
St Ives Ct
Whitehall Garden
Lands End
Otis Bowen Dr
Norwich Ct
Norwich Dr
Singleton
Powers Dr
New Devon St
Jenna Dr
Andrew Ln
Sheffield Ave
Hagburg Dr
Exeter Rd
Barbara Ln
Carnaby Pl
Allison Dr
Westminster Pl
Donna Dr
Paddington Cres
Mayfair Ct
Megan Way
Mayfair Way
Lucy Ln


Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 2: USGS TOPO MAP

N

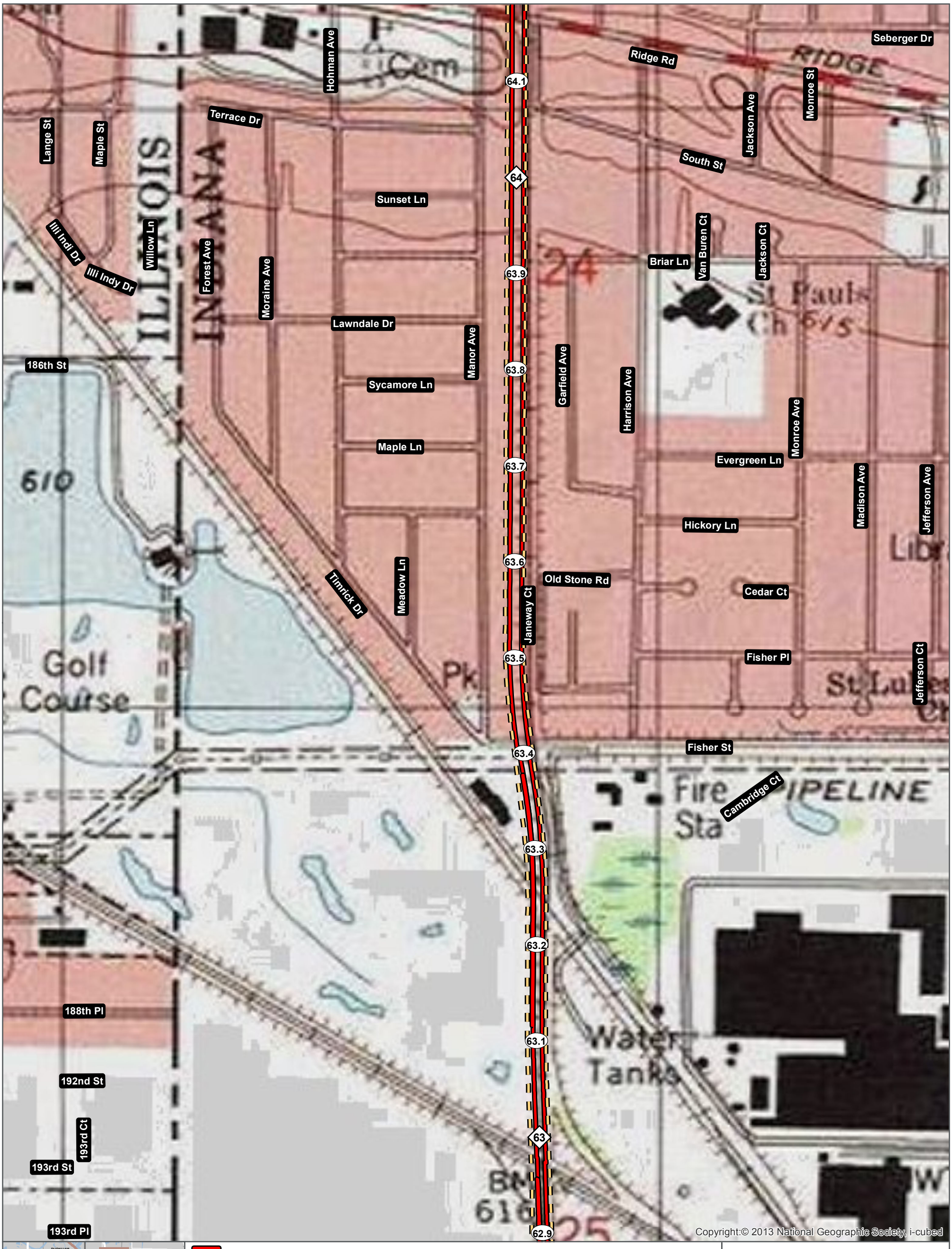
0 500

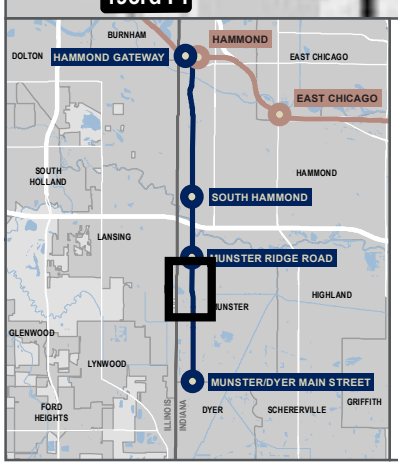
FEET

WEST LAKE CORRIDOR



Data for Reference Only




Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

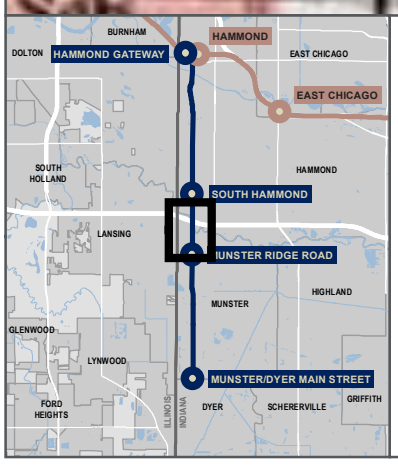
# WATER RESOURCES TECHNICAL REPORT
# EXHIBIT 2: USGS TOPO MAP

0 500
FEET

WEST LAKE CORRIDOR



Data for Reference Only


Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

# WATER RESOURCES TECHNICAL REPORT
# EXHIBIT 2: USGS TOPO MAP

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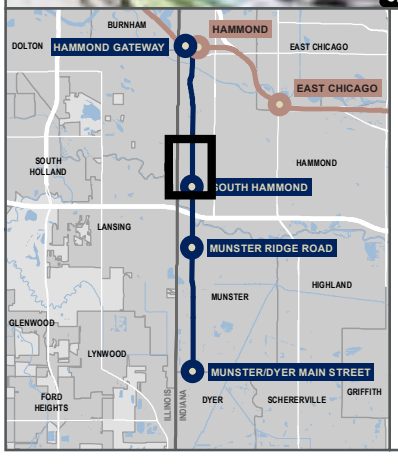
WEST LAKE CORRIDOR



Data for Reference Only


Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

# WATER RESOURCES TECHNICAL REPORT
# EXHIBIT 2: USGS TOPO MAP

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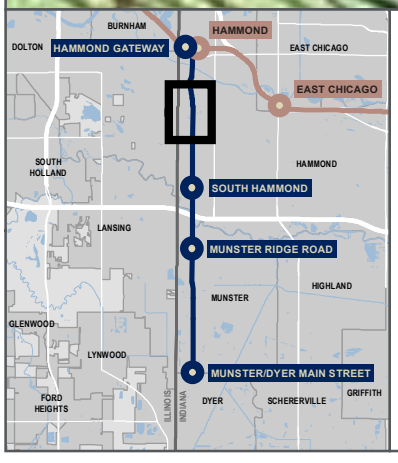
WEST LAKE CORRIDOR



Data for Reference Only


Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

# WATER RESOURCES TECHNICAL REPORT
# EXHIBIT 2: USGS TOPO MAP

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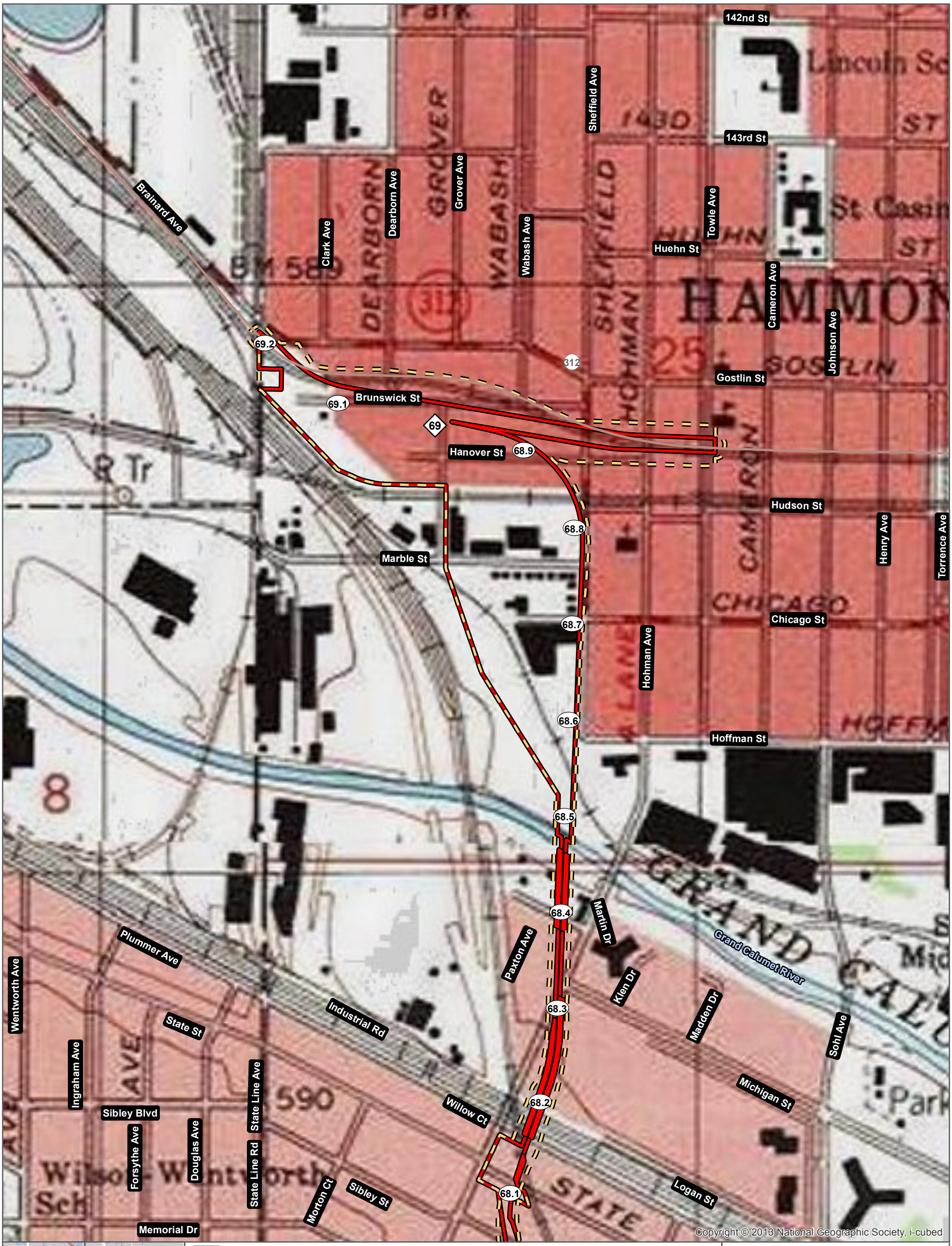
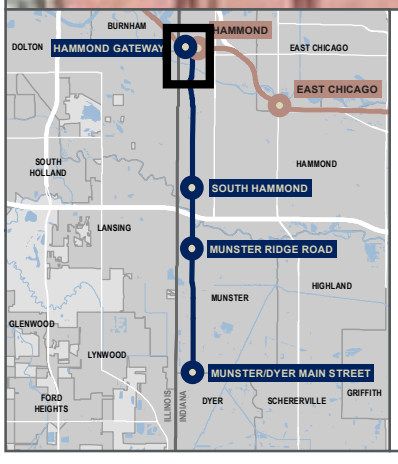
WEST LAKE CORRIDOR

SHEET 6 OF 7

Data for Reference Only




Project Footprint

Environmental Survey Area

Milepost

Milepost Stationing

DATA SOURCES:
USGS Calumet City and Lake Calumet, Indiana 7.5 Minute Quadrangle

DISCLAIMER:
Data for reference only

# WATER RESOURCES TECHNICAL REPORT
# EXHIBIT 2: USGS TOPO MAP

0 500
FEET

WEST LAKE CORRIDOR

SHEET 7 OF 7

Data for Reference Only

# Exhibit 3: NWI Wetlands, Soils, and Floodplains

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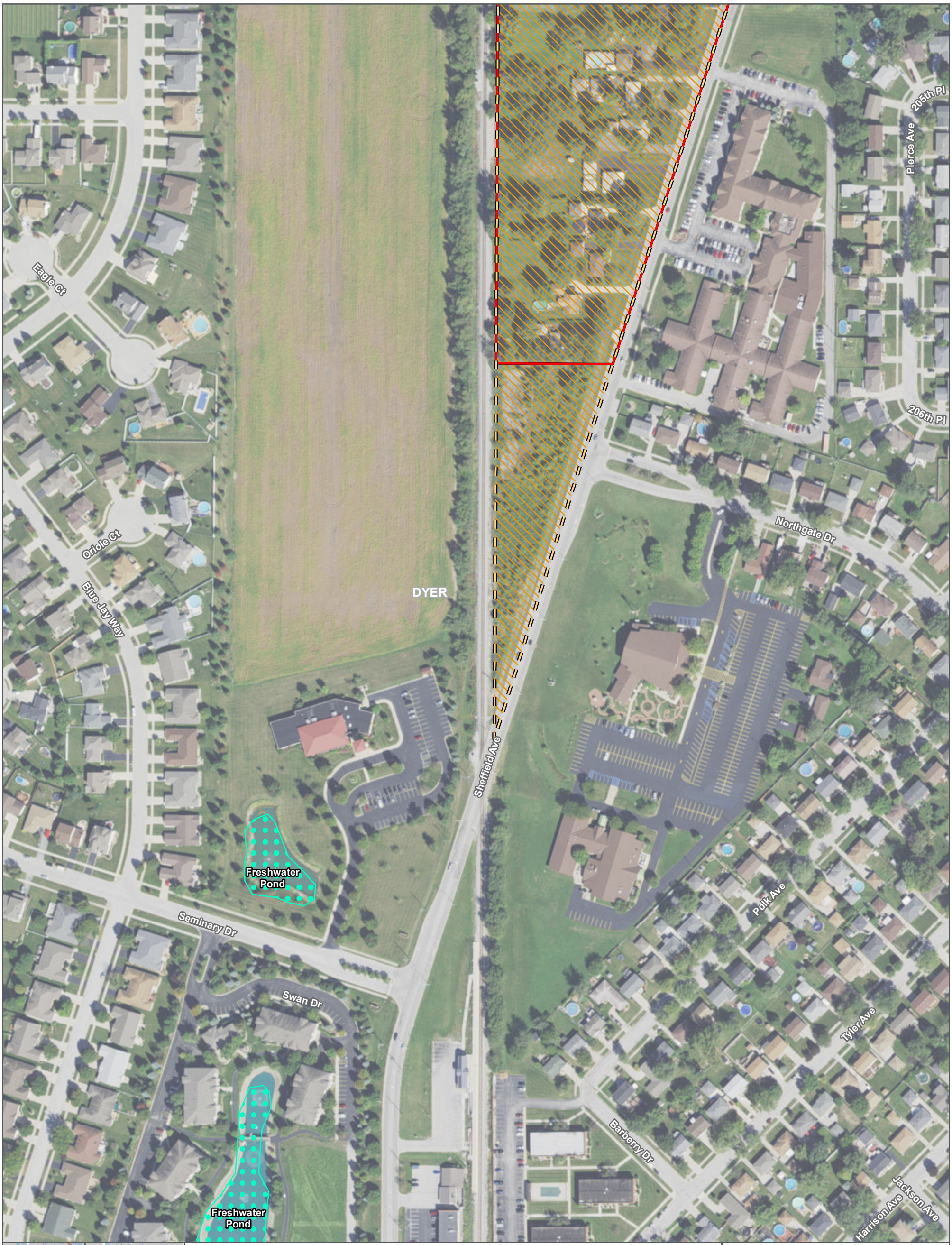
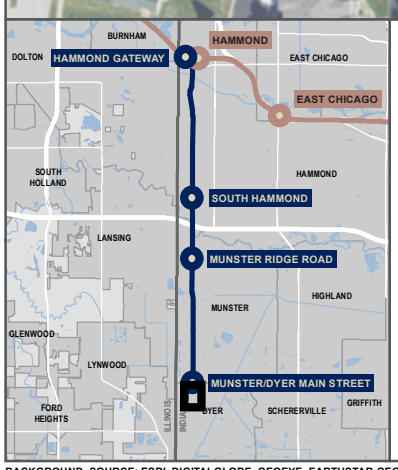



- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

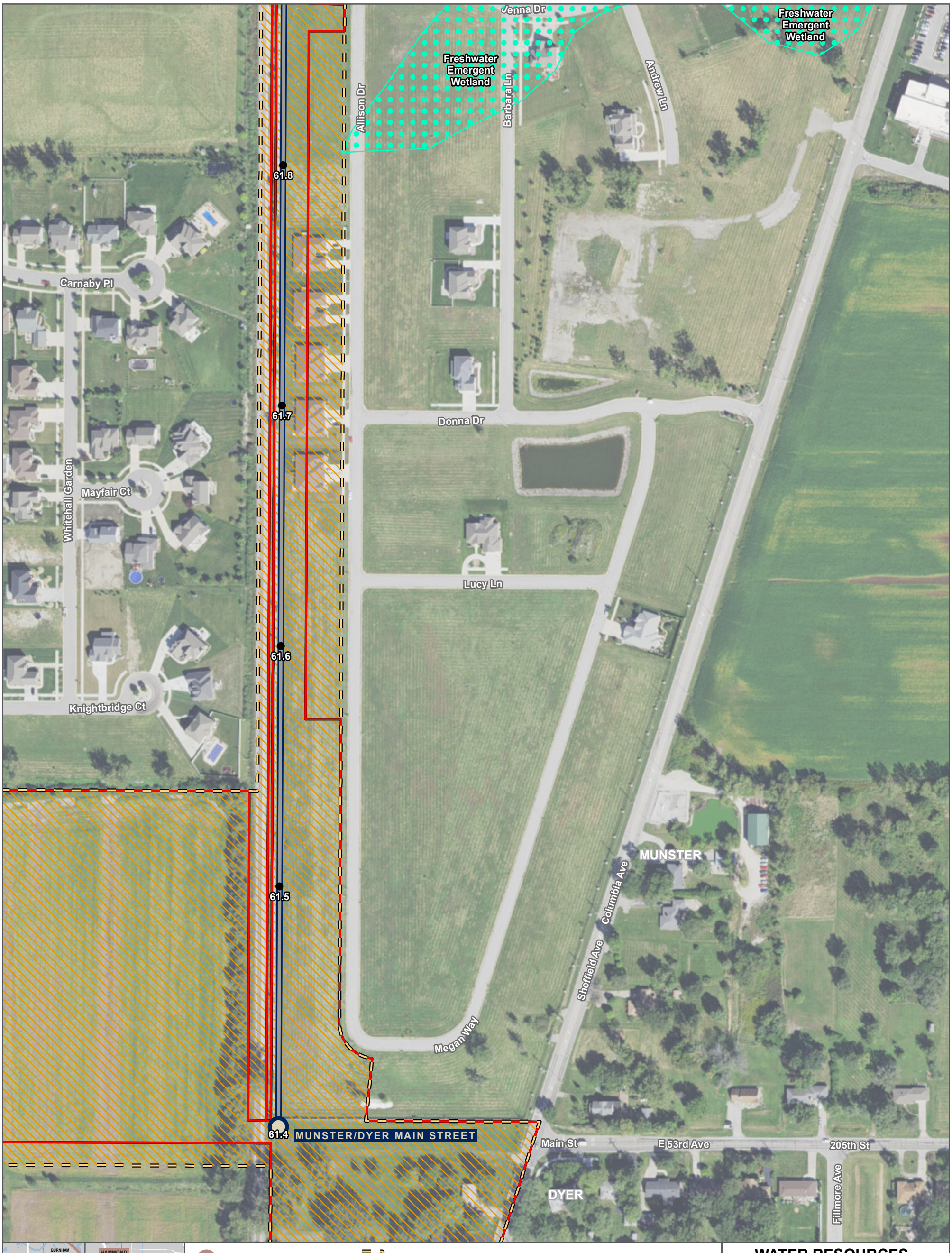
WEST LAKE CORRIDOR

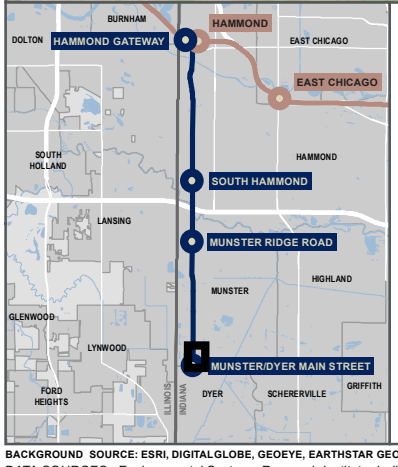
SHEET 1 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200
FEET

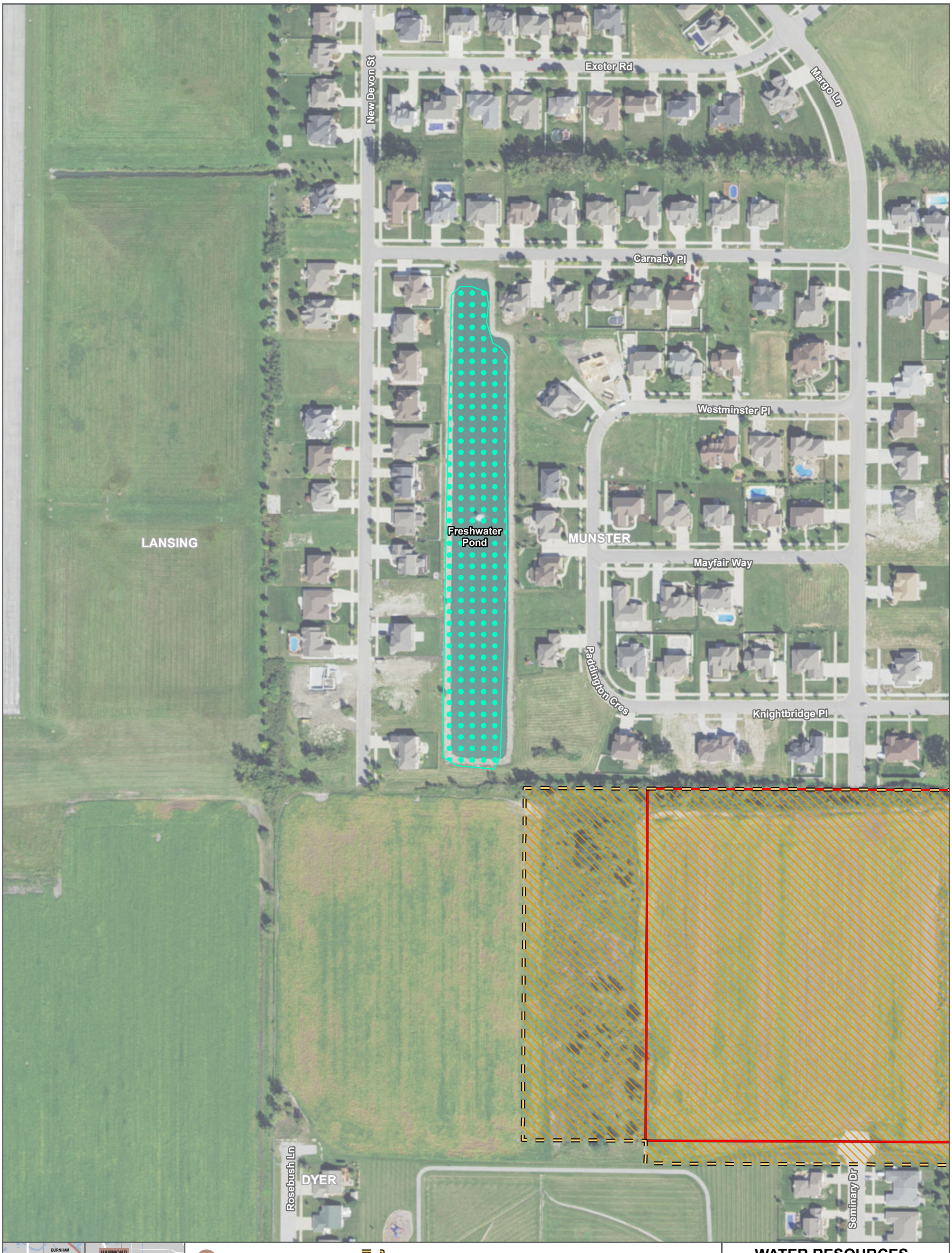
WEST LAKE CORRIDOR

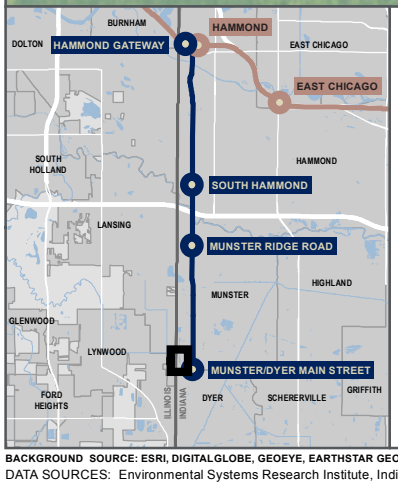
SHEET 2 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

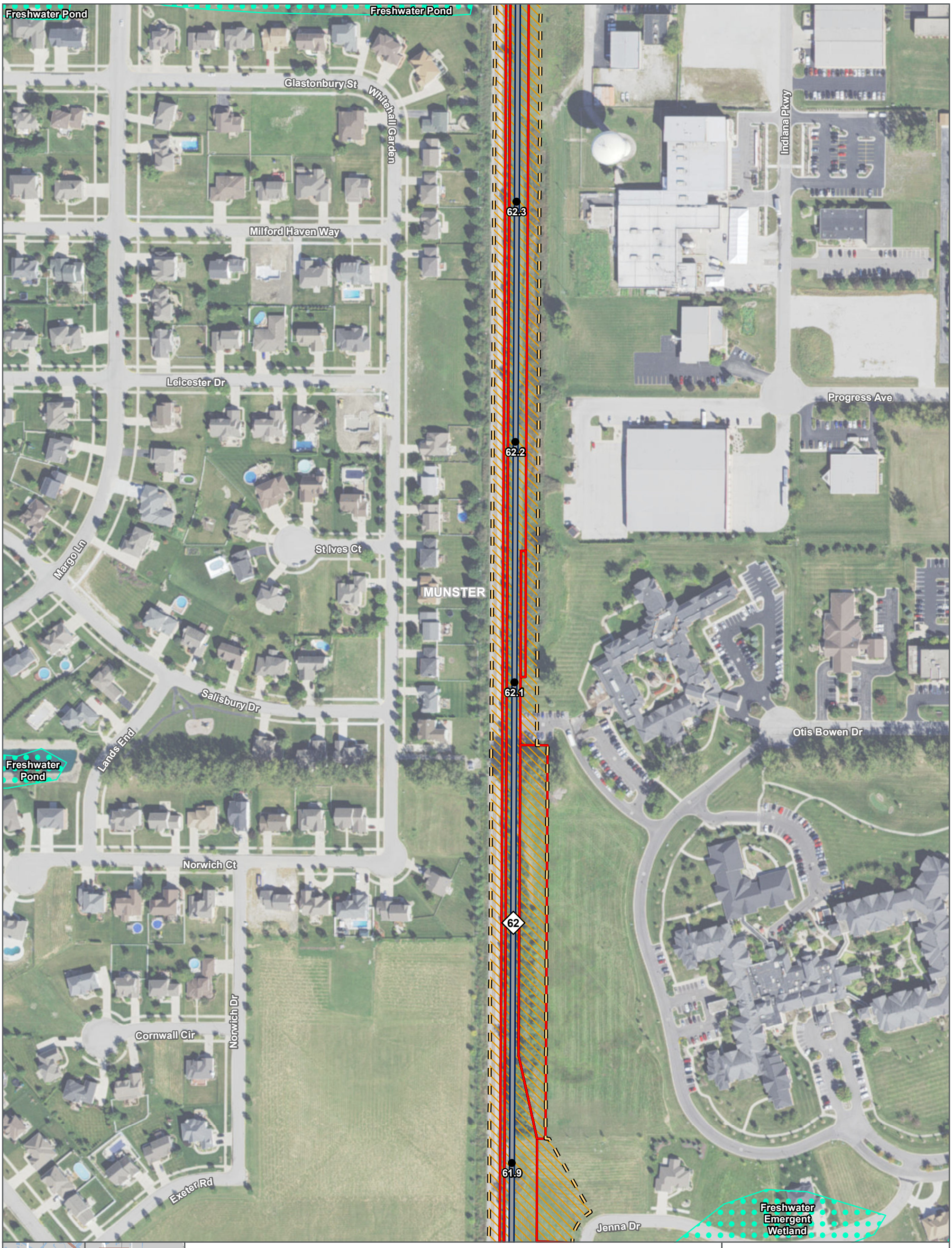
WEST LAKE CORRIDOR

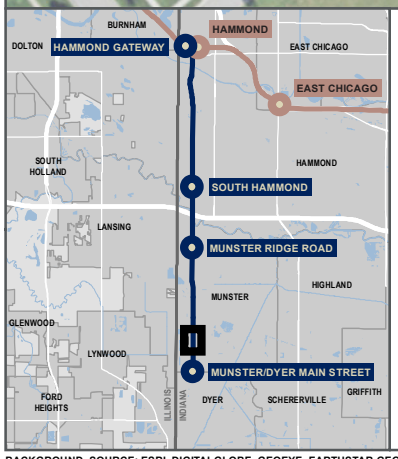
SHEET 3 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing
- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

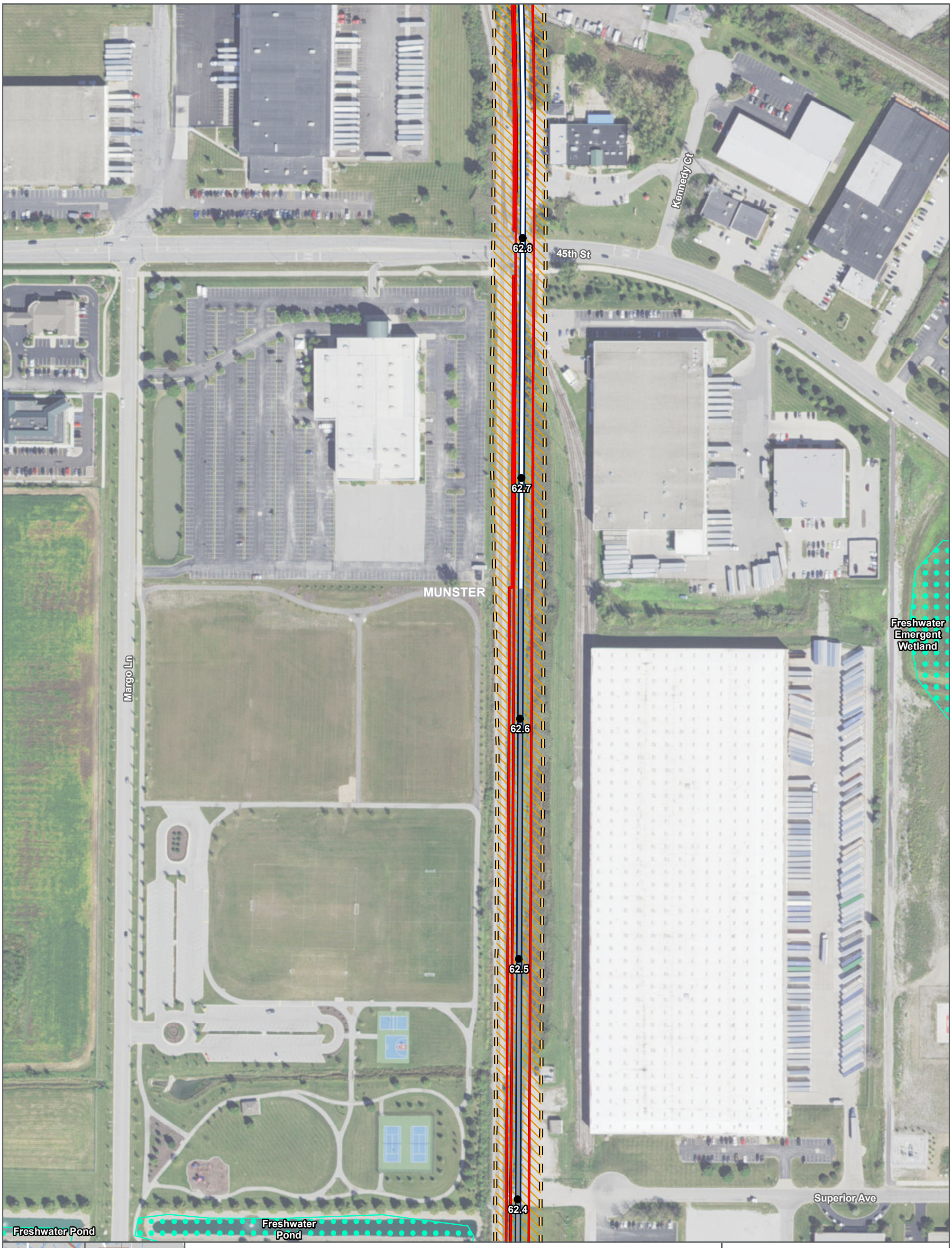
WEST LAKE CORRIDOR

SHEET 4 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service





Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

**Milepost**

Milepost Stationing

Environmental Survey Area

Project Footprint

NWI Wetlands

Hydric Soil

Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain

Regulatory Floodway

Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

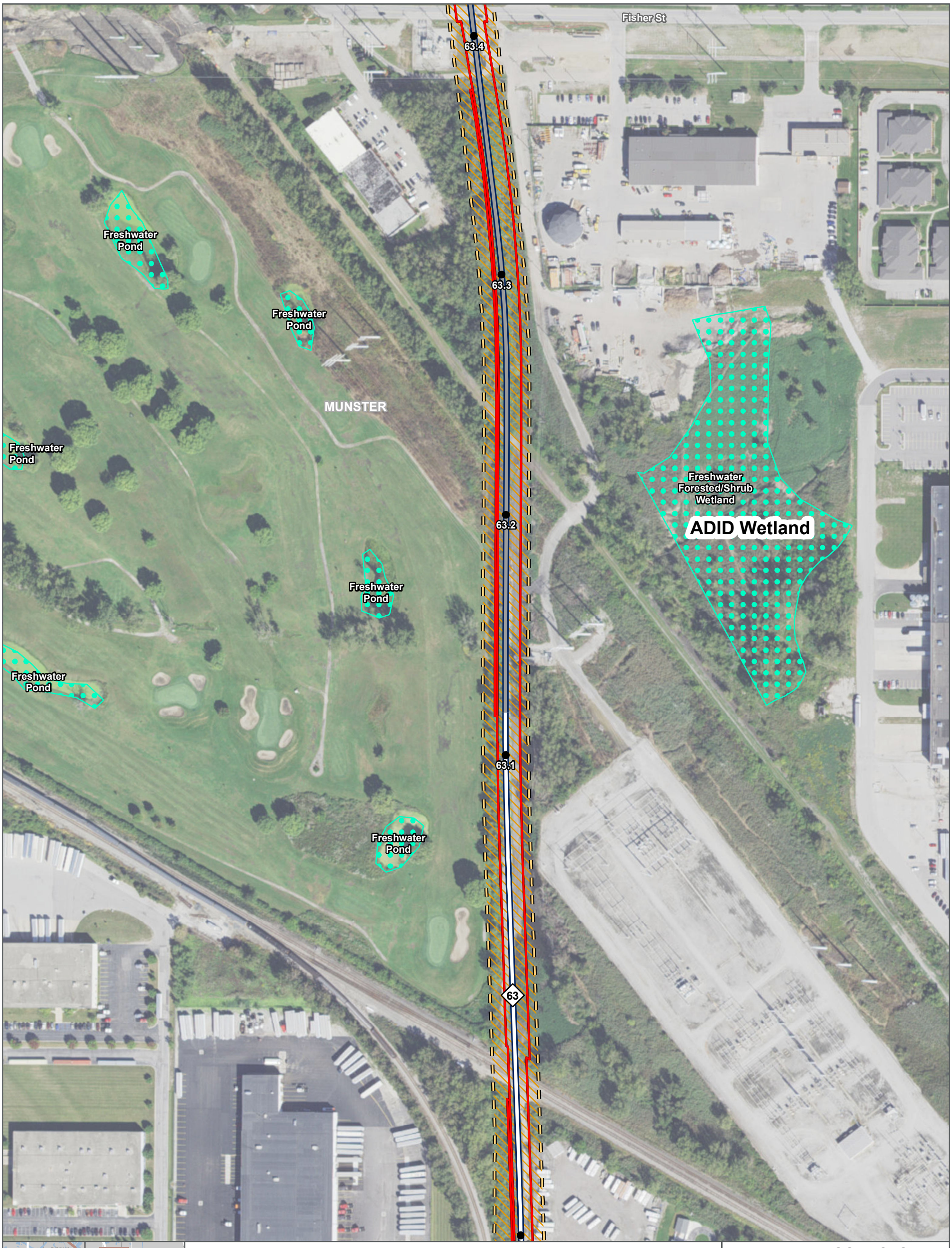
0 200

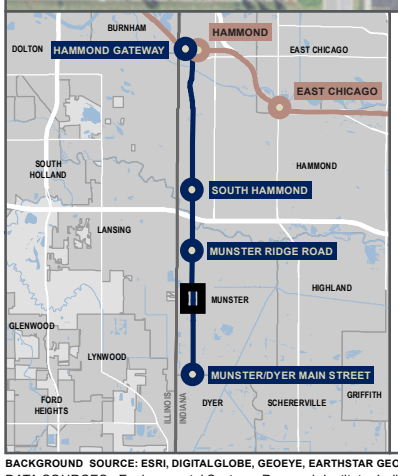
FEET

WEST LAKE CORRIDOR

SHEET 5 OF 18

Data for Reference Only




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

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- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

0 200
FEET

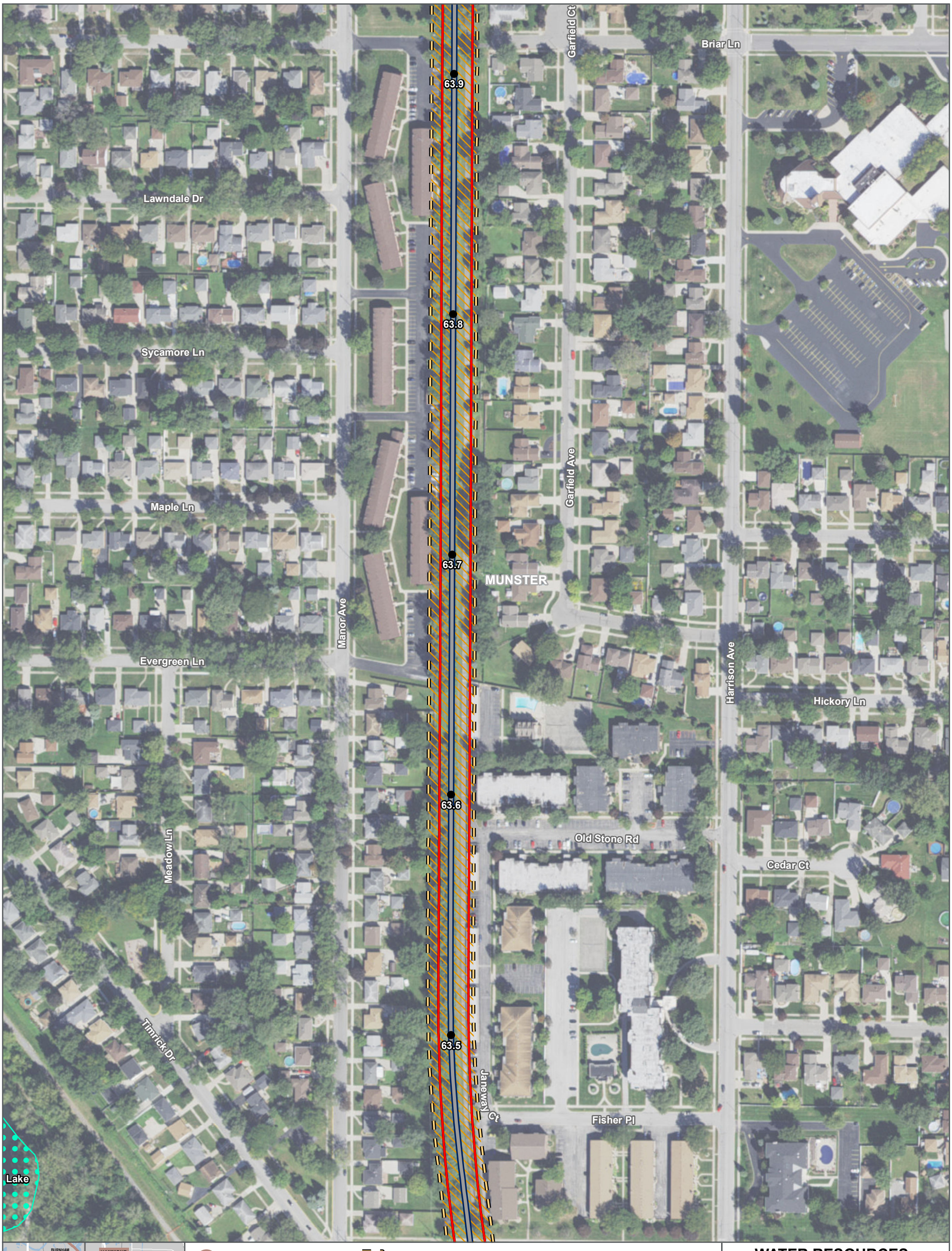
WEST LAKE CORRIDOR

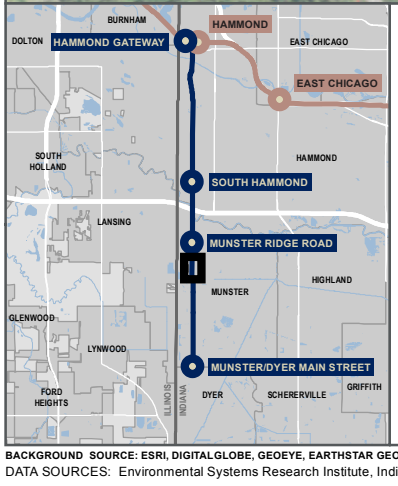
SHEET 6 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

**Milepost**

Milepost Stationing

Environmental Survey Area

Project Footprint

NWI Wetlands

Hydric Soil

Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain

Regulatory Floodway

Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

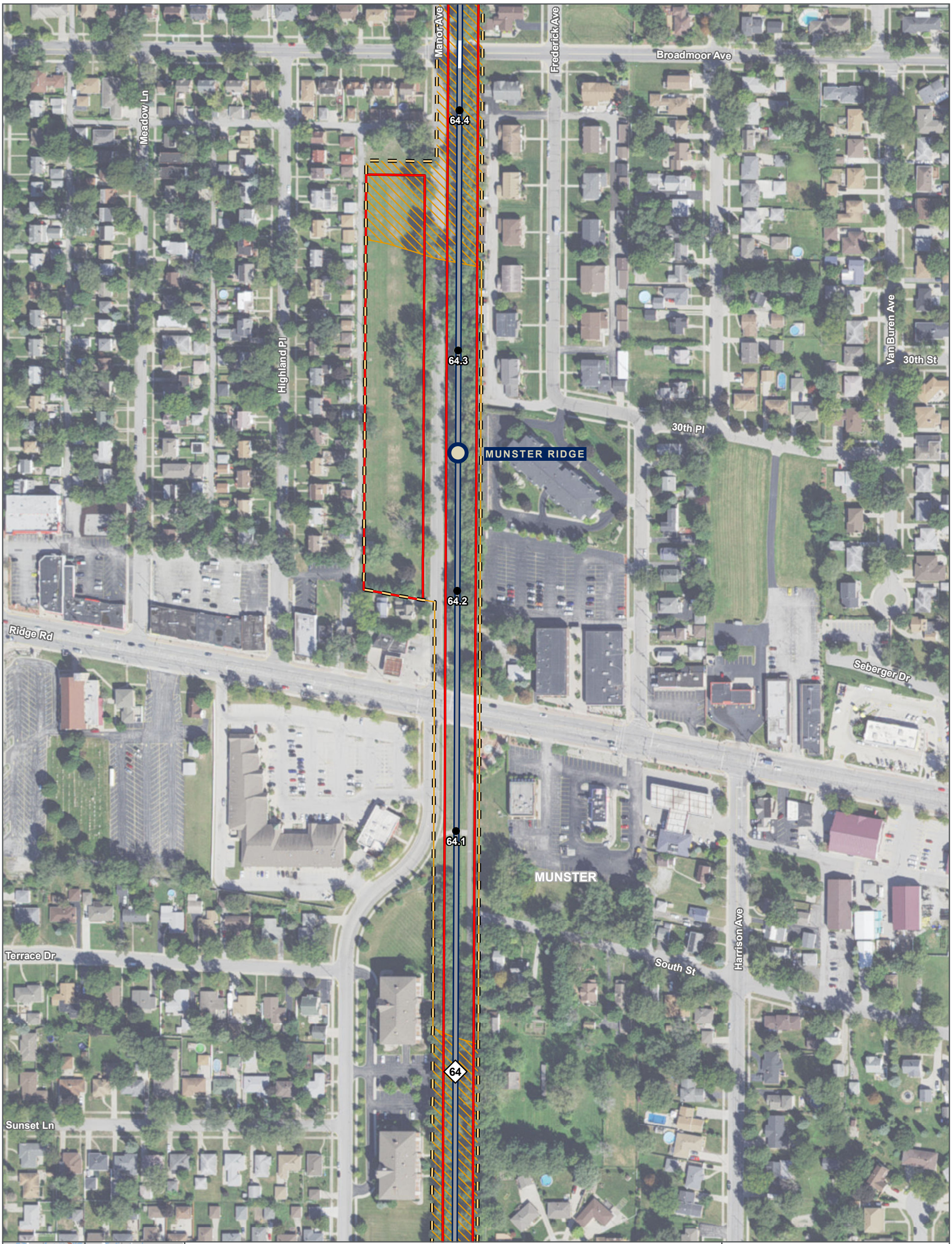
0 200

FEET

WEST LAKE CORRIDOR



Data for Reference Only




# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

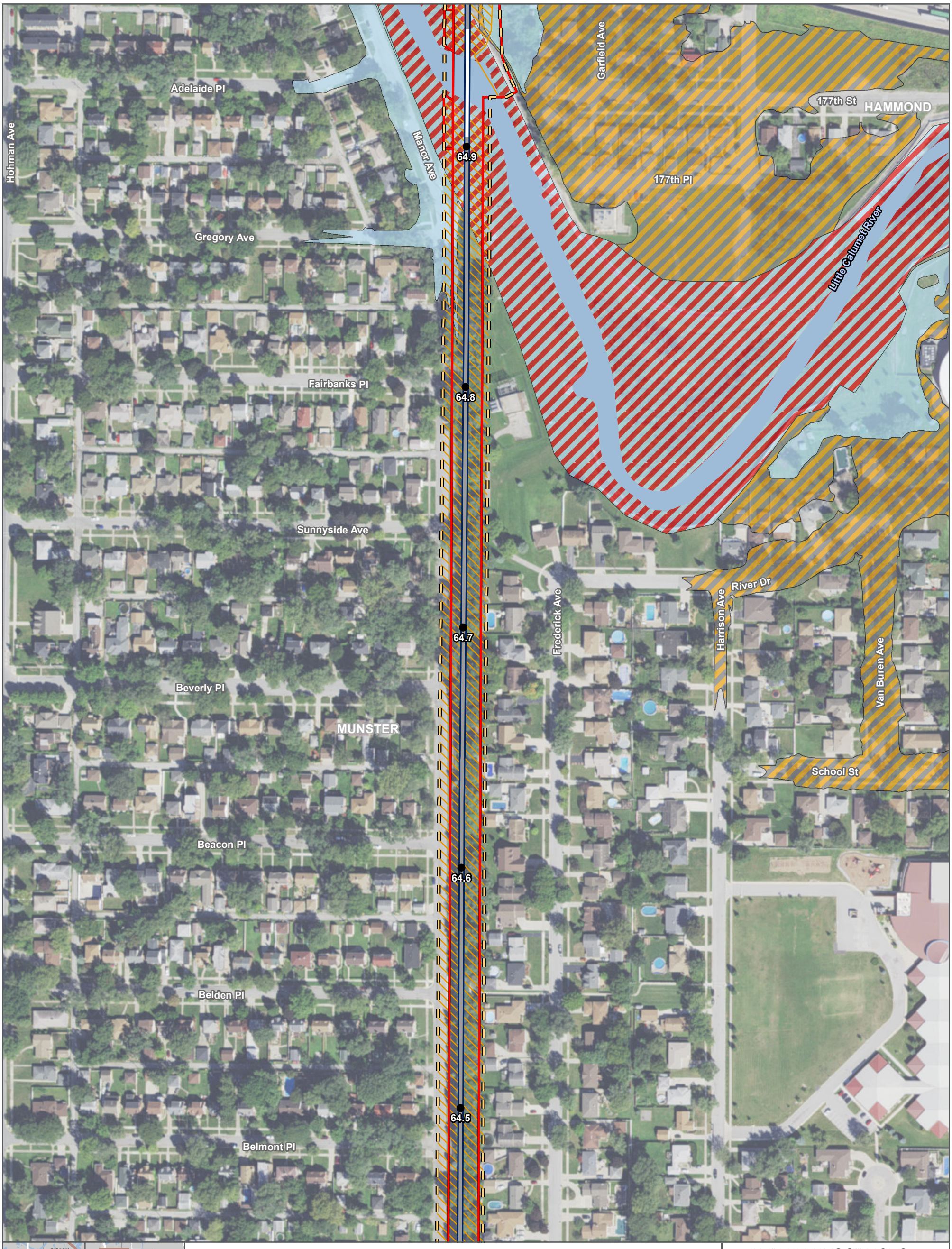
WEST LAKE CORRIDOR

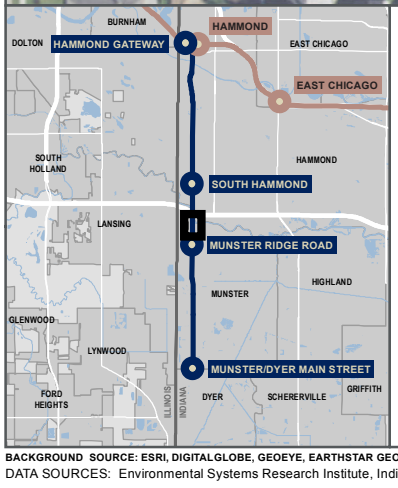
SHEET 8 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

**Milepost**

Milepost Stationing

Environmental Survey Area

Project Footprint

NWI Wetlands

Hydric Soil

Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain

Regulatory Floodway

Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT
# EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

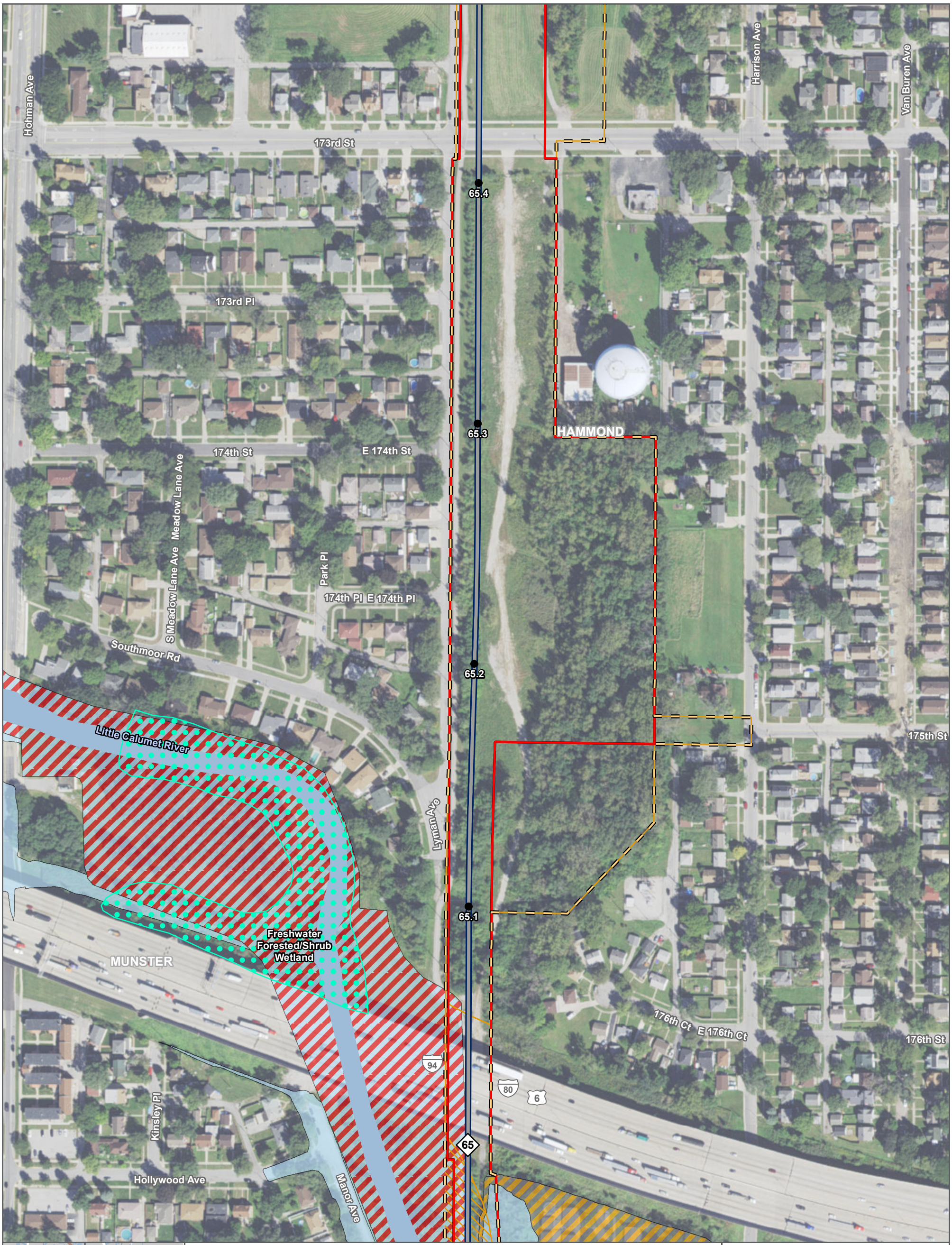
WEST LAKE CORRIDOR

SHEET 9 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service





- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

0 200
FEET

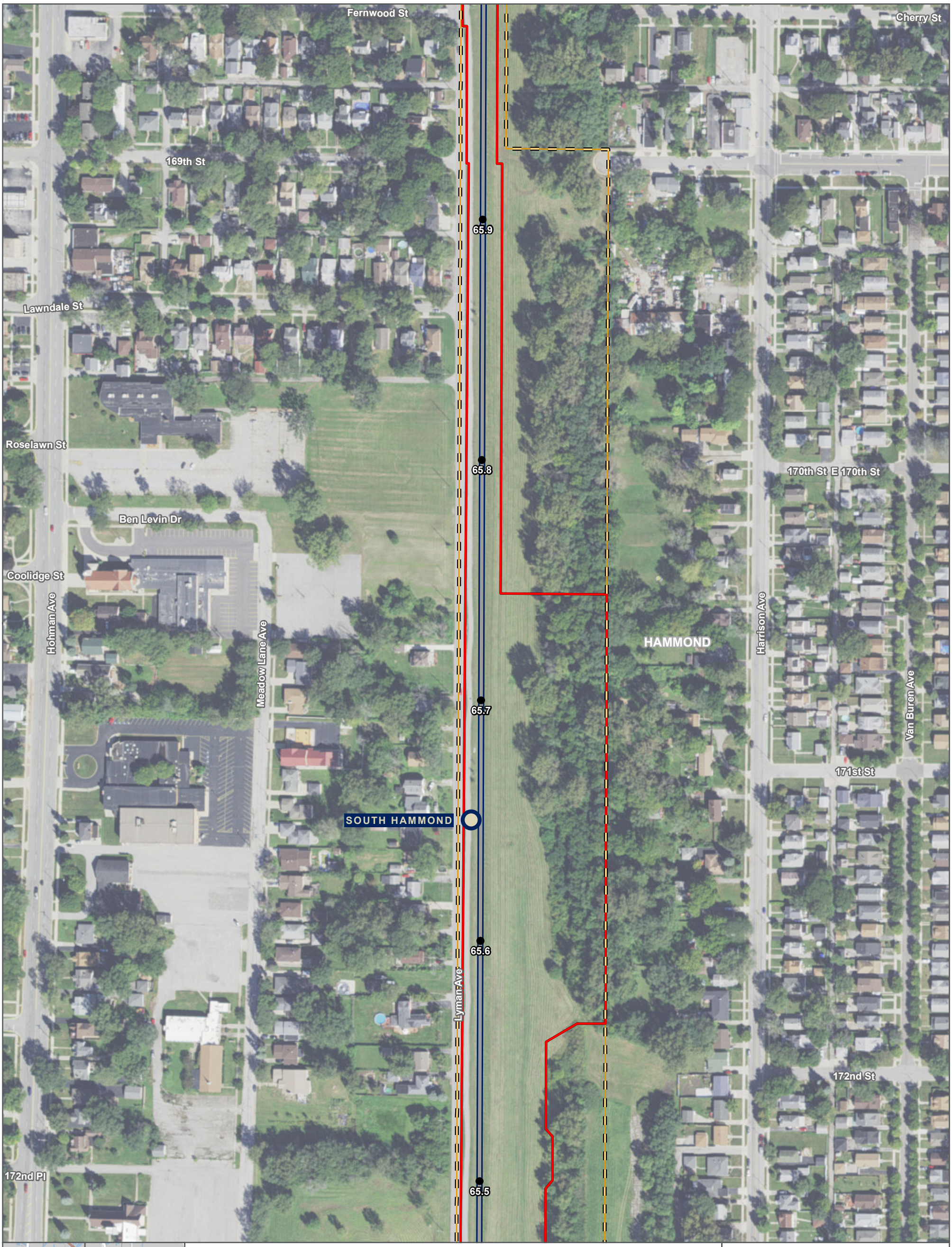
WEST LAKE CORRIDOR

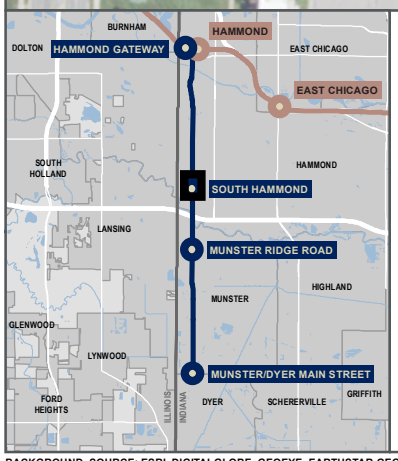
SHEET 10 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

**Milepost**

Milepost Stationing

Environmental Survey Area

Project Footprint

NWI Wetlands

Hydric Soil

Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain

Regulatory Floodway

Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

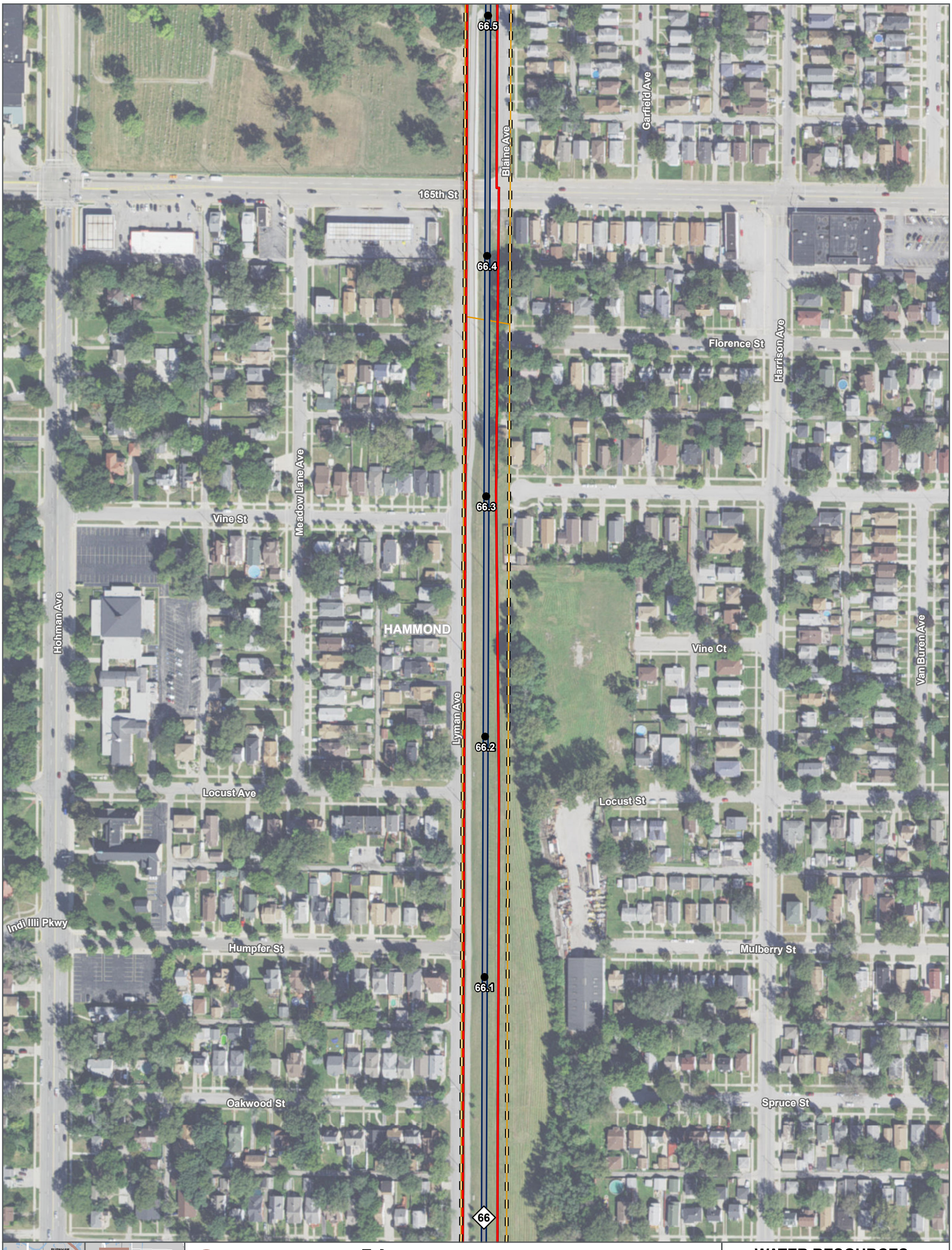
WEST LAKE CORRIDOR

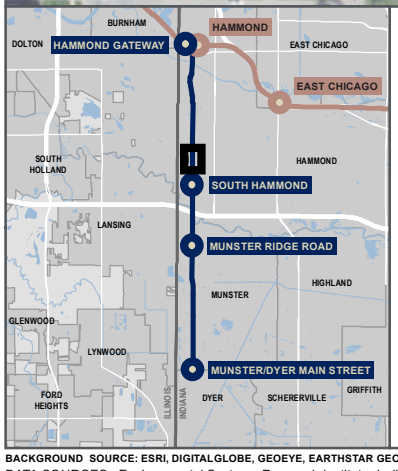
SHEET 11 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

**Milepost**

Milepost Stationing

Environmental Survey Area

Project Footprint

NWI Wetlands

Hydric Soil

Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain

Regulatory Floodway

Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

WEST LAKE CORRIDOR

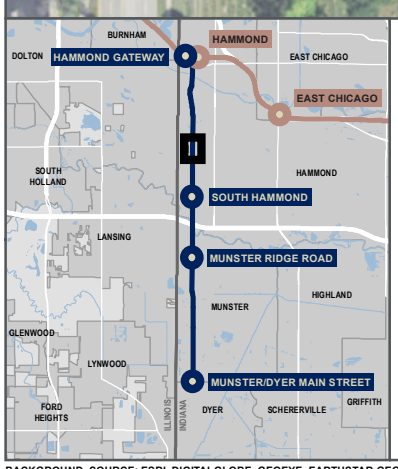
SHEET 12 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service

Highland St
67
Detroit St
Washington St
Harrison Ave
Dyer Pkwy
66.9
Glendale Park
Lyman Ave
Conkey St
Blaine Ave
66.8
Havana Ave
Hohman Ave
Wildwood Rd
HAMMOND
Garfield Ave
Van Buren Ave
66.7
Kenwood St
66.6
Cleveland St




Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

**Milepost**

Milepost Stationing

Environmental Survey Area

Project Footprint

NWI Wetlands

Hydric Soil

Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain

Regulatory Floodway

Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

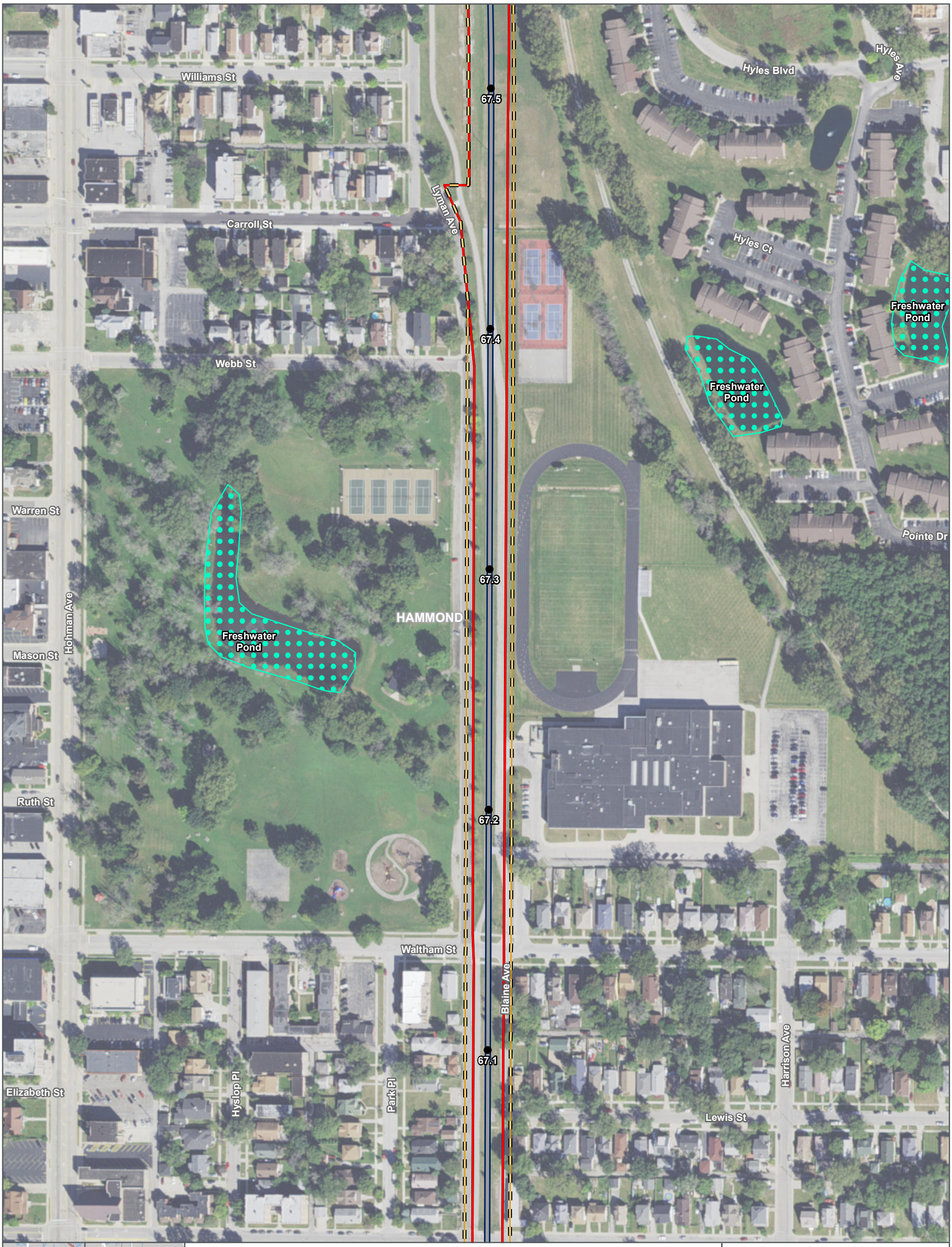
WEST LAKE CORRIDOR

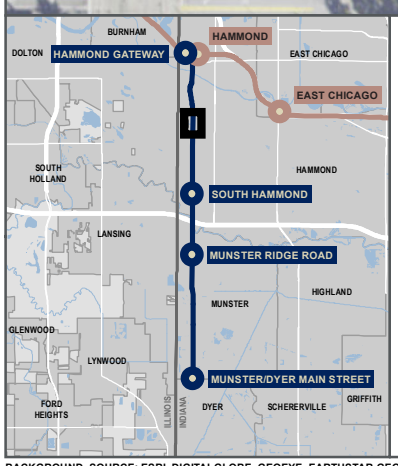
SHEET 13 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




Existing Station
Proposed Station
Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative
On Structure Alternative
**Milepost**
Milepost Stationing

Environmental Survey Area
Project Footprint
NWI Wetlands
Hydric Soil
Soil Unit Boundary

**FEMA Floodplains/Floodways**

100-Year Floodplain
Regulatory Floodway
Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200
FEET

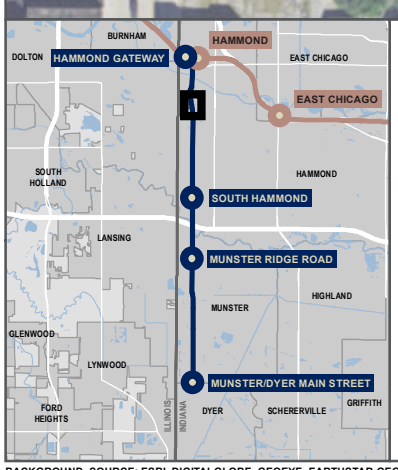
WEST LAKE CORRIDOR

SHEET 14 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service


- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing
- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

0 200

FEET

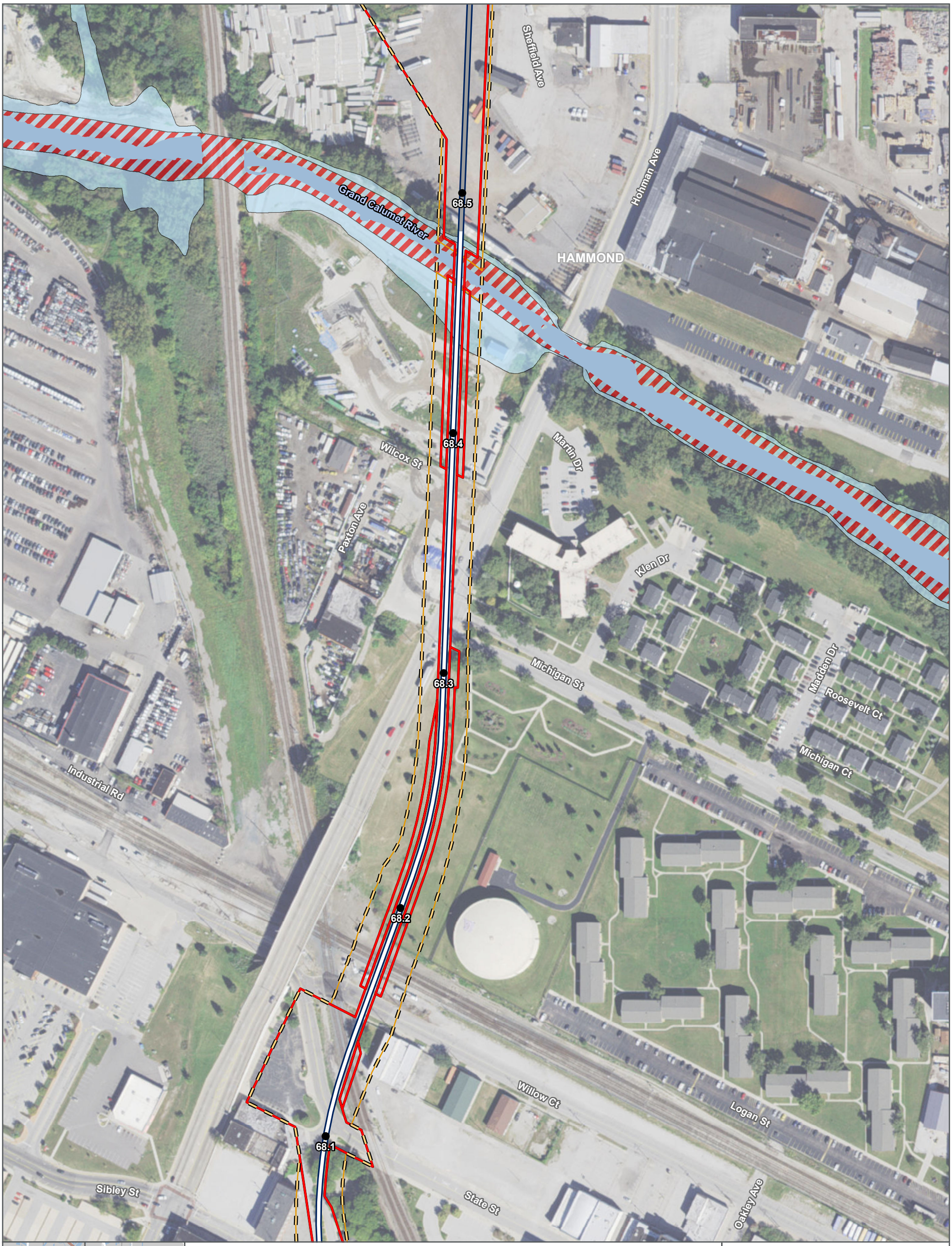
WEST LAKE CORRIDOR

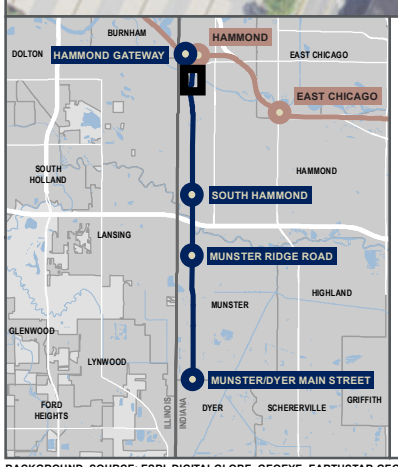
SHEET 15 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

0 200
FEET

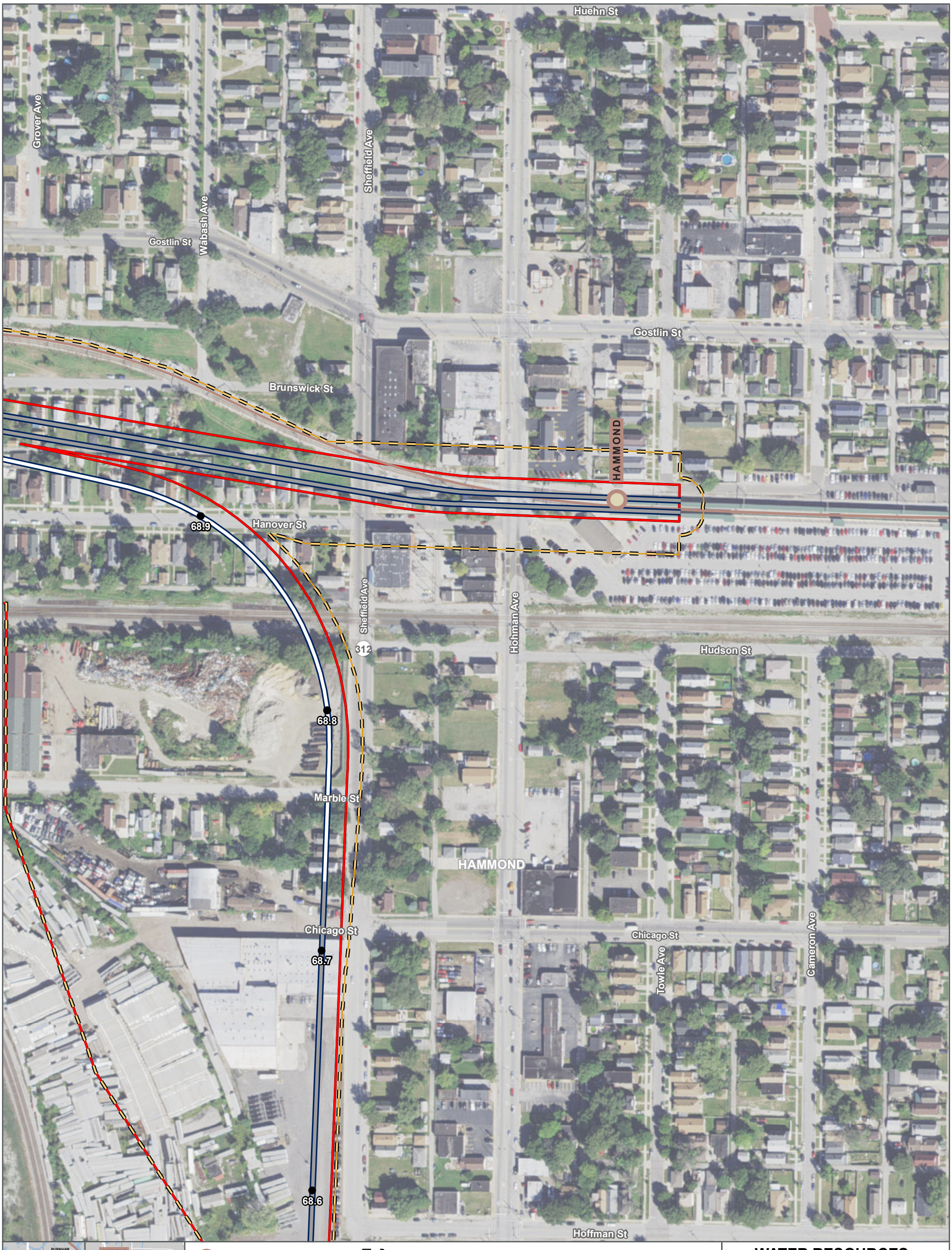
WEST LAKE CORRIDOR

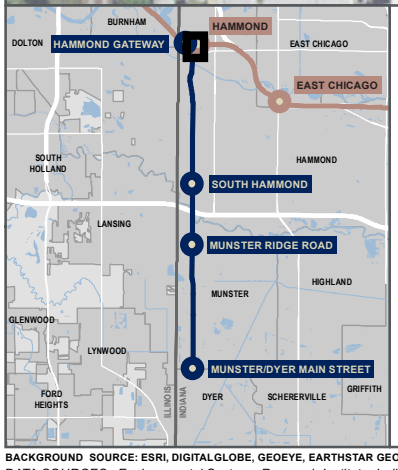
SHEET 16 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

N

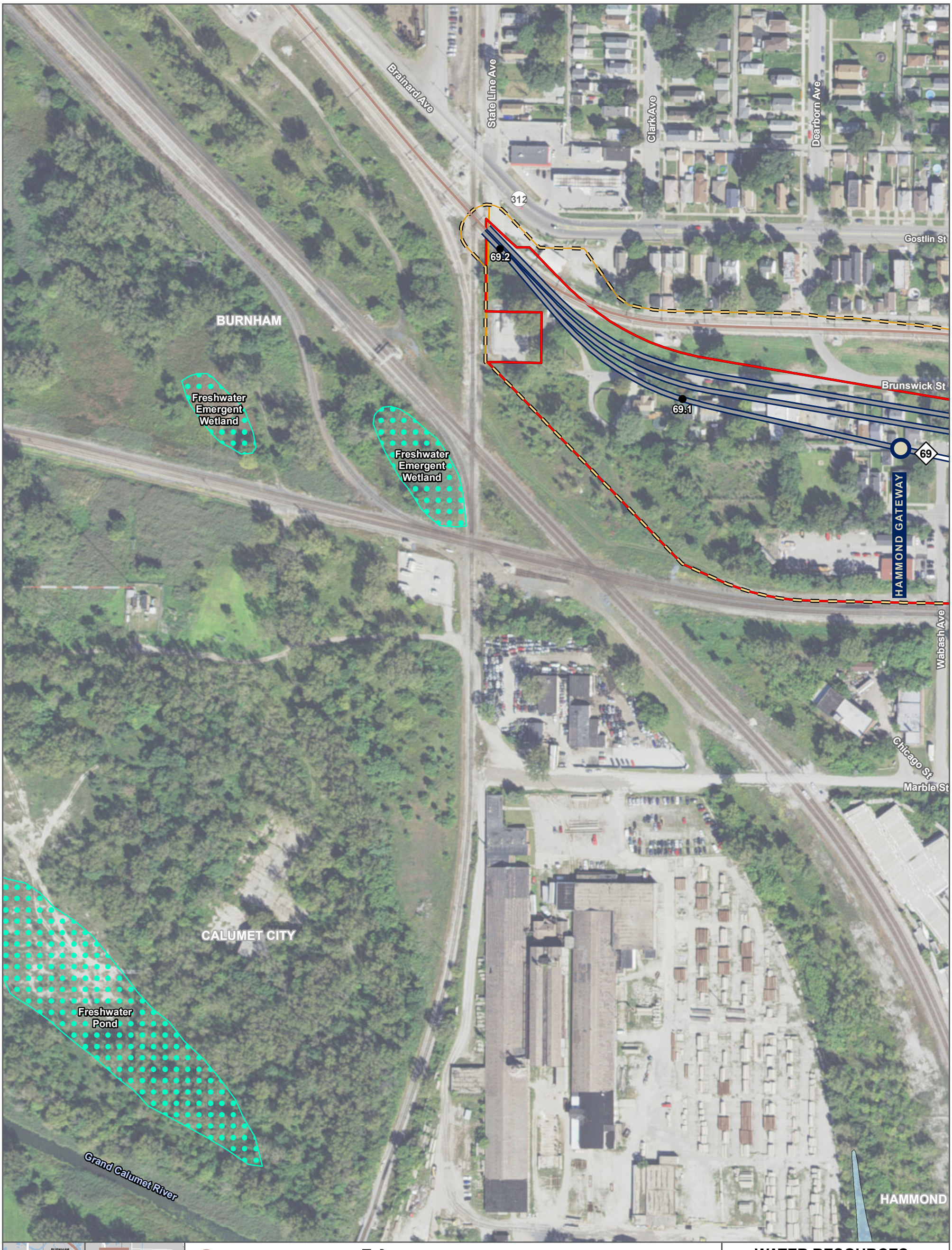
0 200

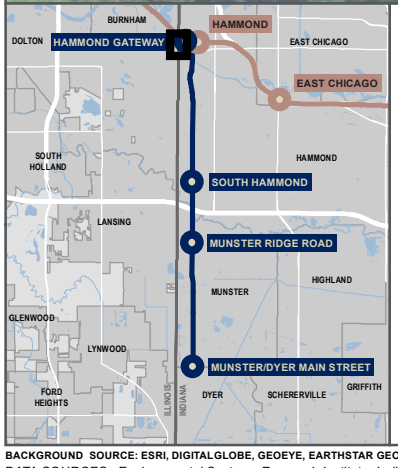
FEET

WEST LAKE CORRIDOR



Data for Reference Only




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- **Milepost**
- Milepost Stationing

- Environmental Survey Area
- Project Footprint
- NWI Wetlands
- Hydric Soil
- Soil Unit Boundary

**FEMA Floodplains/Floodways**

- 100-Year Floodplain
- Regulatory Floodway
- Area with Reduced Risk Due to Levee

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 3: NWI WETLANDS, SOILS, AND FLOODPLAINS

0 200
FEET

WEST LAKE CORRIDOR

SHEET 18 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service

# Exhibit 4: Delineated Wetlands

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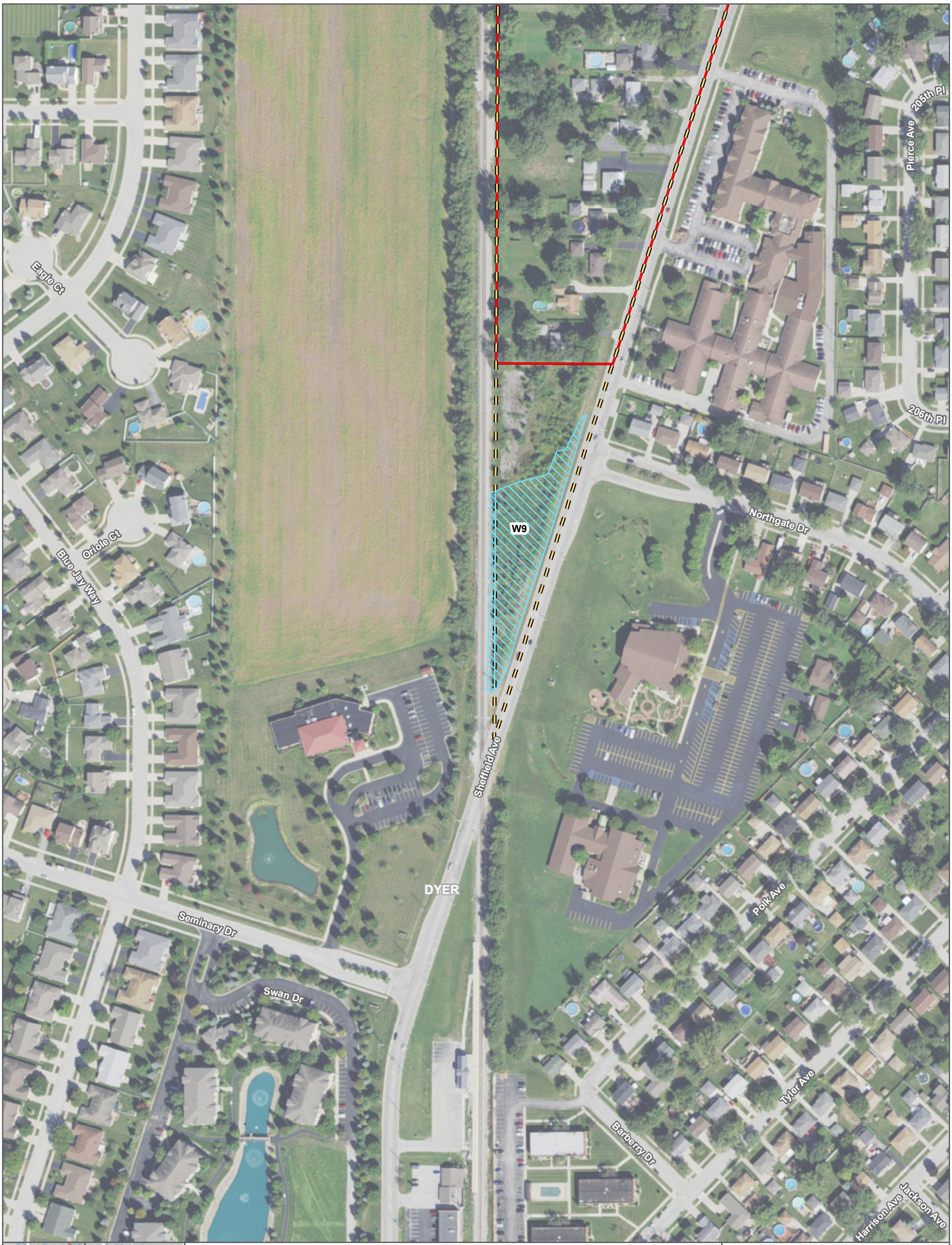
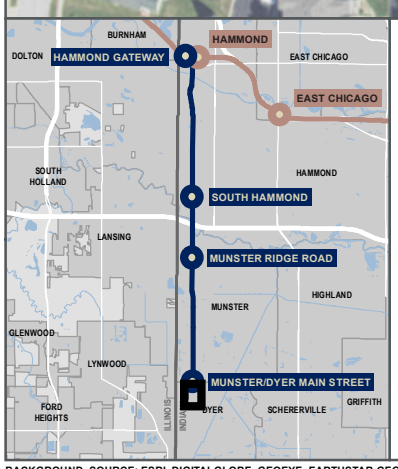



Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

Milepost

Milepost Stationing

Environmental Survey Area

Project Footprint

**Delineated Wetlands**

Jurisdictional

Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

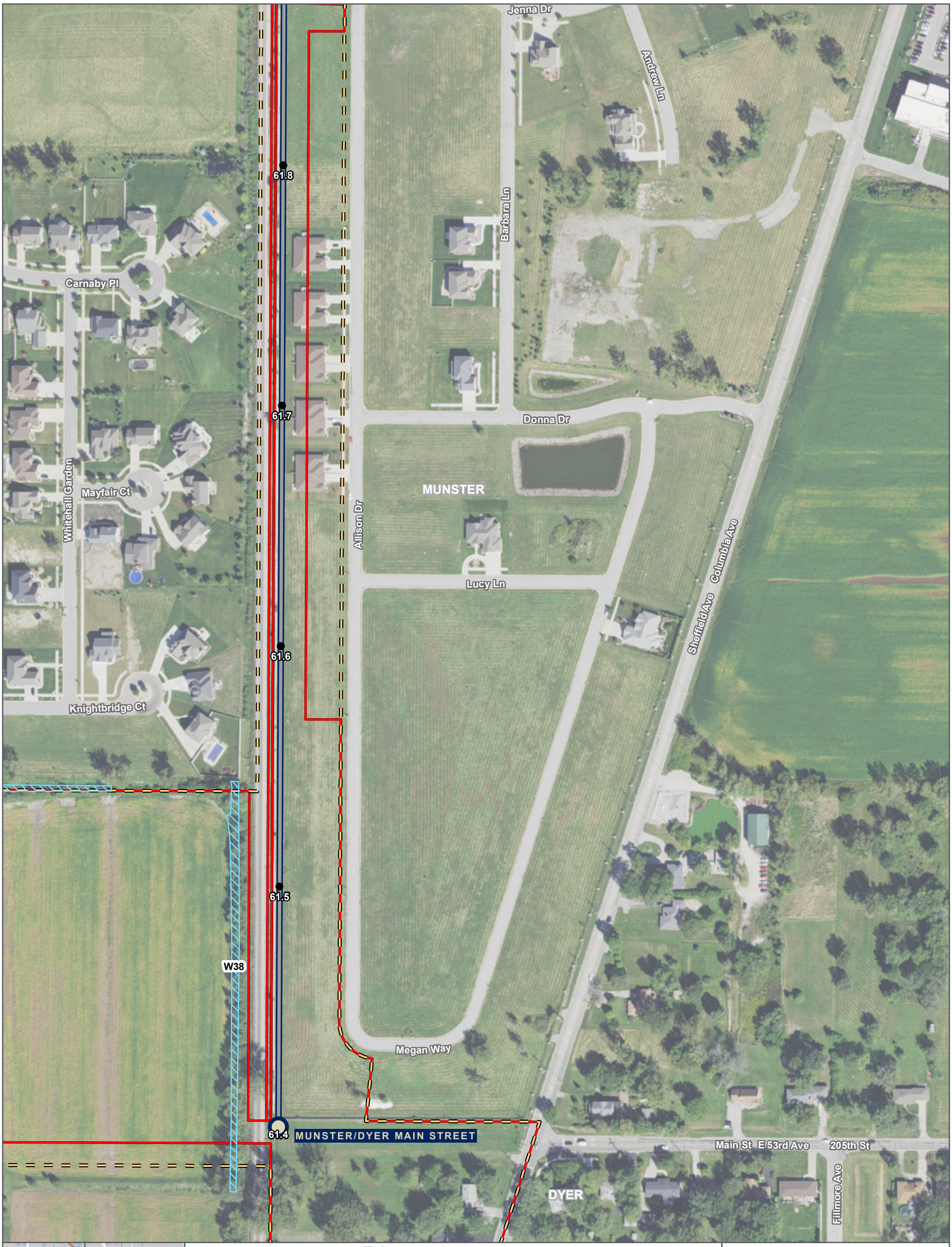
WEST LAKE CORRIDOR

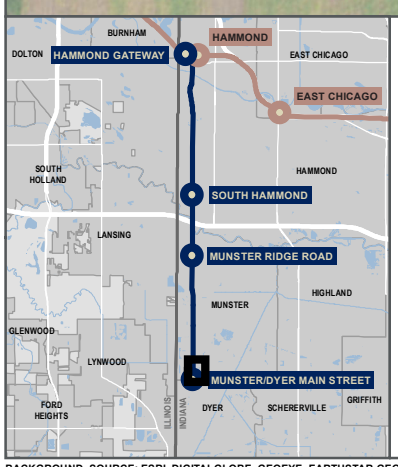
SHEET 1 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

Milepost

Milepost Stationing

Environmental Survey Area

Project Footprint

**Delineated Wetlands**

Jurisdictional

Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

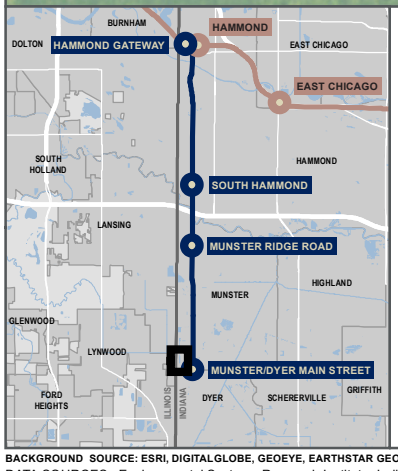
WEST LAKE CORRIDOR

SHEET 2 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service


- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- Milepost
- Milepost Stationing
- Environmental Survey Area
- Project Footprint

**Delineated Wetlands**

- Jurisdictional
- Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

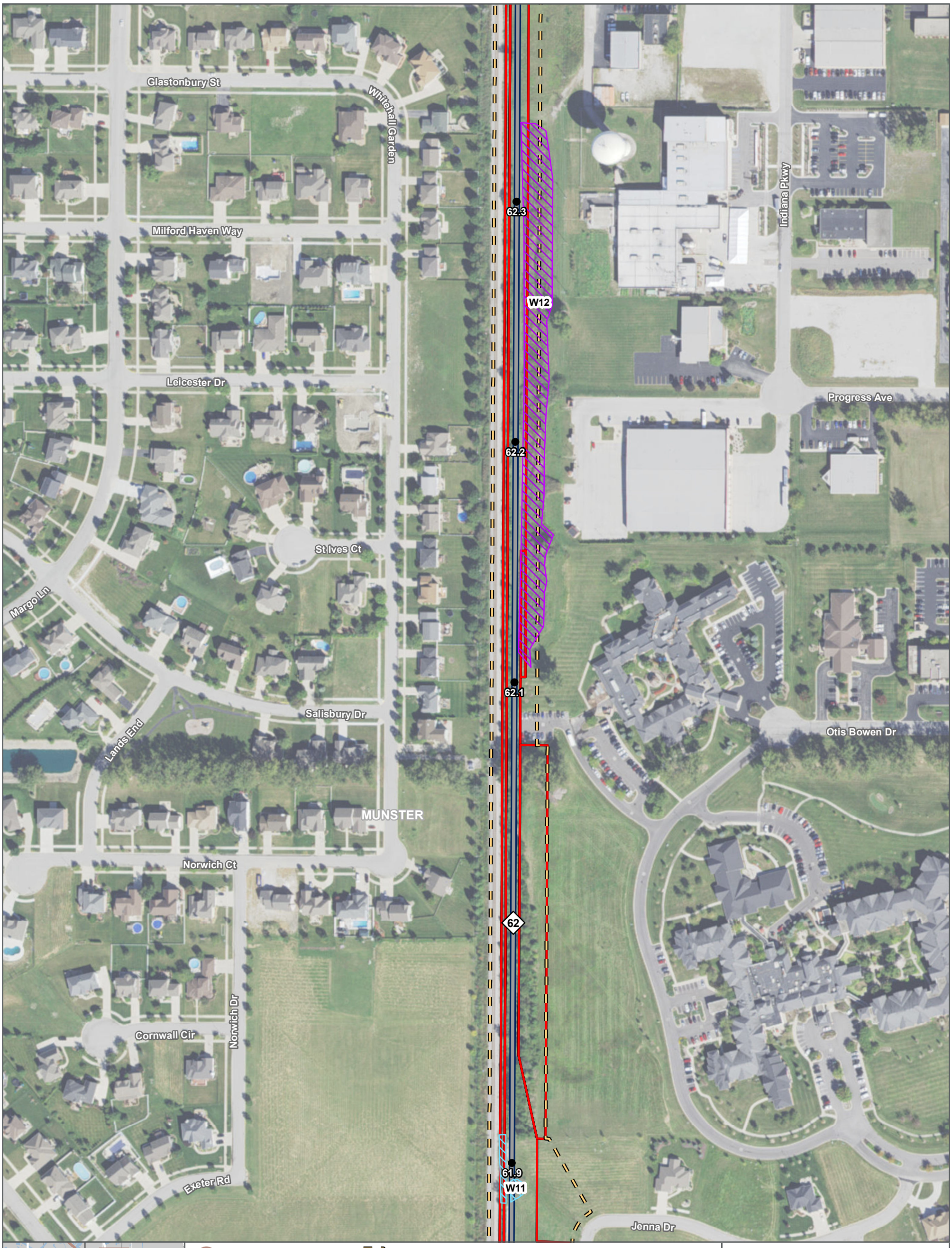
0 200
FEET

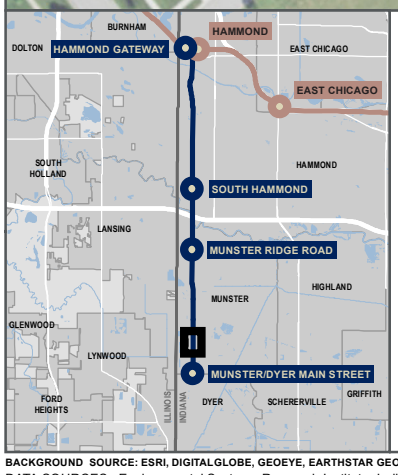
SHEET 3 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- Milepost
- Milepost Stationing
- Environmental Survey Area
- Project Footprint

**Delineated Wetlands**

- Jurisdictional
- Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

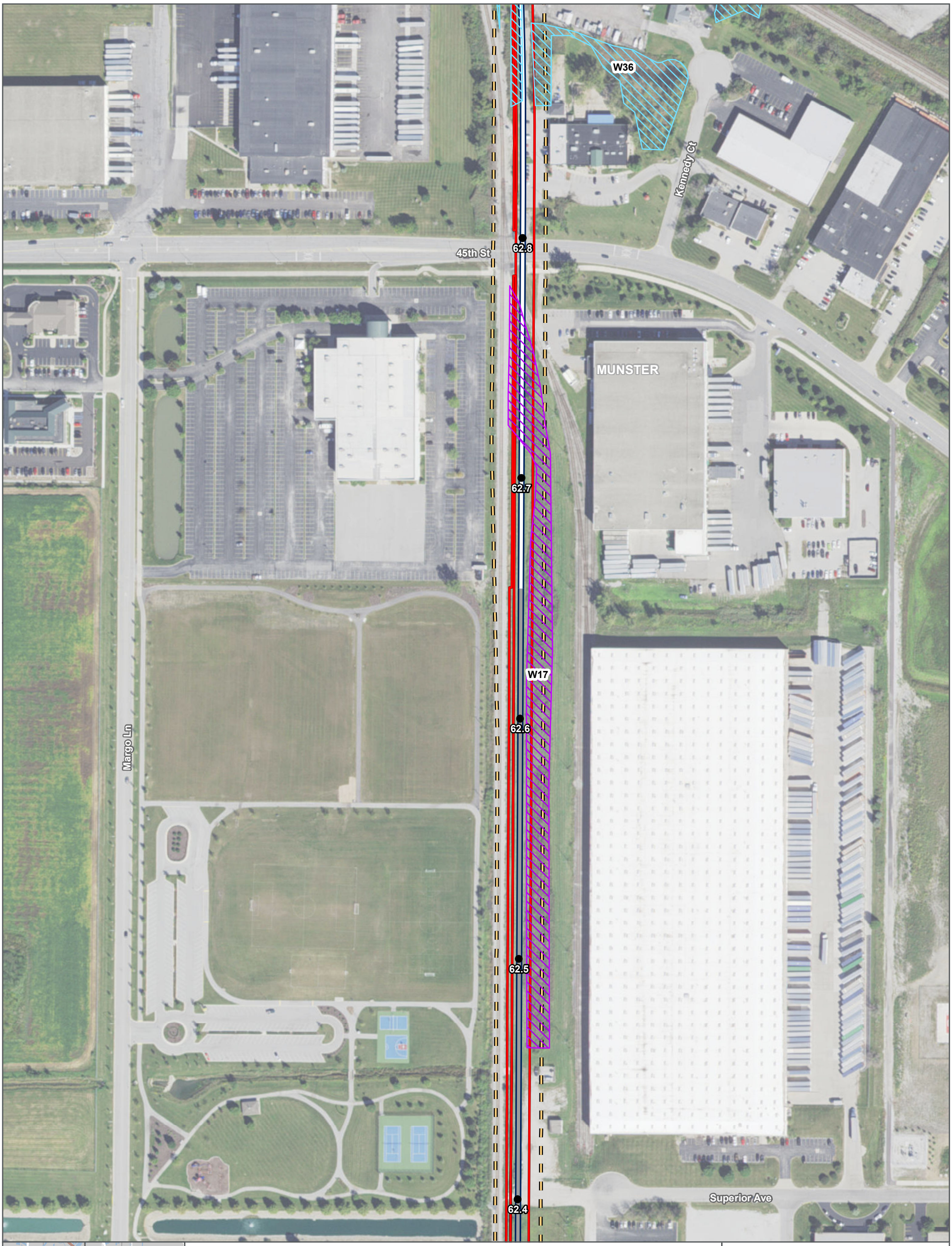
WEST LAKE CORRIDOR

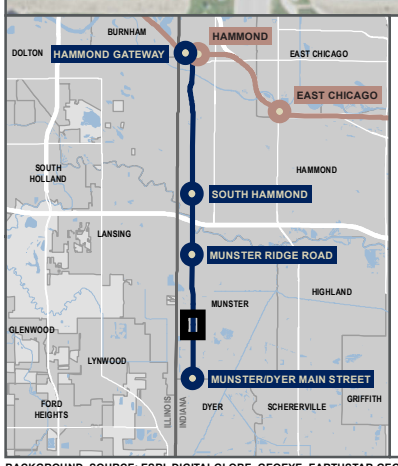
SHEET 4 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service




- Existing Station
- Proposed Station
- Existing South Shore Line

**FEIS Preferred Alternative**

- At-Grade Alternative
- On Structure Alternative
- Milepost
- Milepost Stationing
- Environmental Survey Area
- Project Footprint

**Delineated Wetlands**

- Jurisdictional
- Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

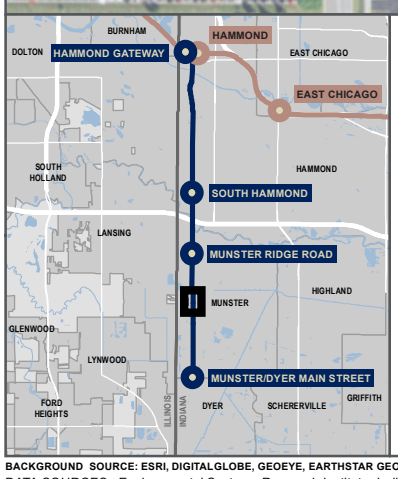
FEET

WEST LAKE CORRIDOR



Data for Reference Only

Fisher St
63.4
63.3
W34
W33
63.2
MUNSTER
63.1
W32
63
W35
W37

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Milepost Stationing

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Jurisdictional

Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

WEST LAKE CORRIDOR

SHEET 6 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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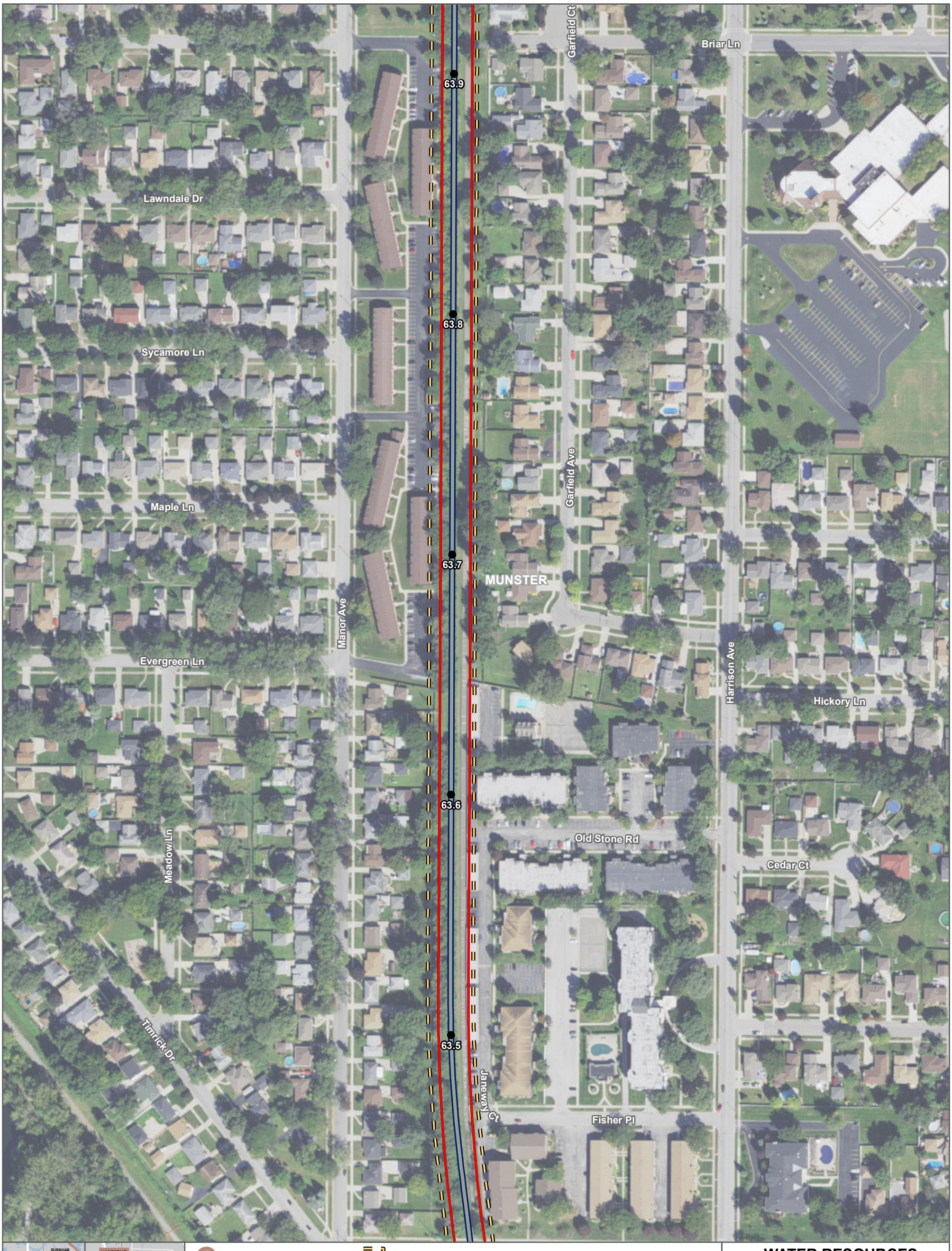


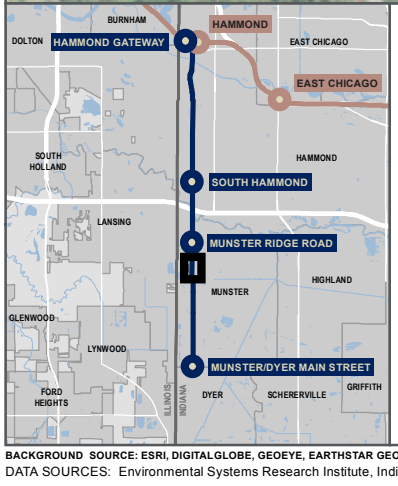


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0 200

FEET

WEST LAKE CORRIDOR

SHEET 7 OF 18

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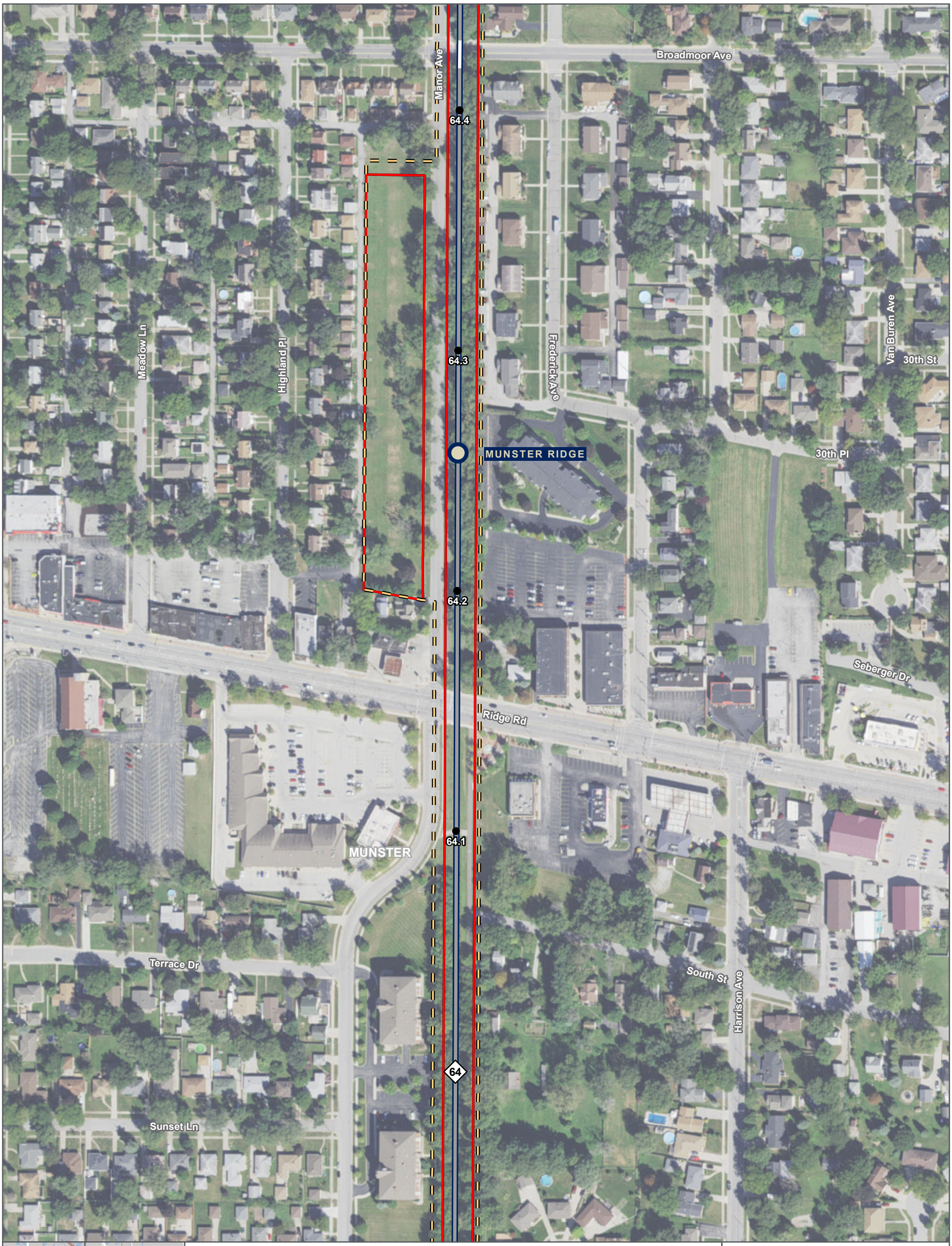


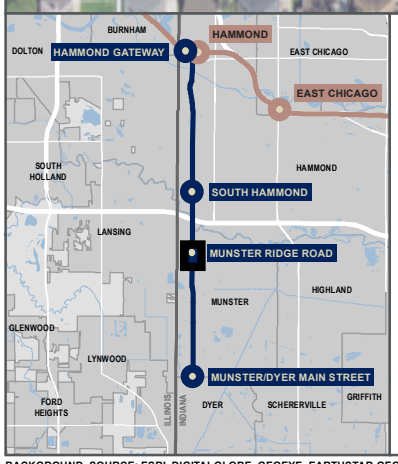


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# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

WEST LAKE CORRIDOR

SHEET 8 OF 18

Data for Reference Only

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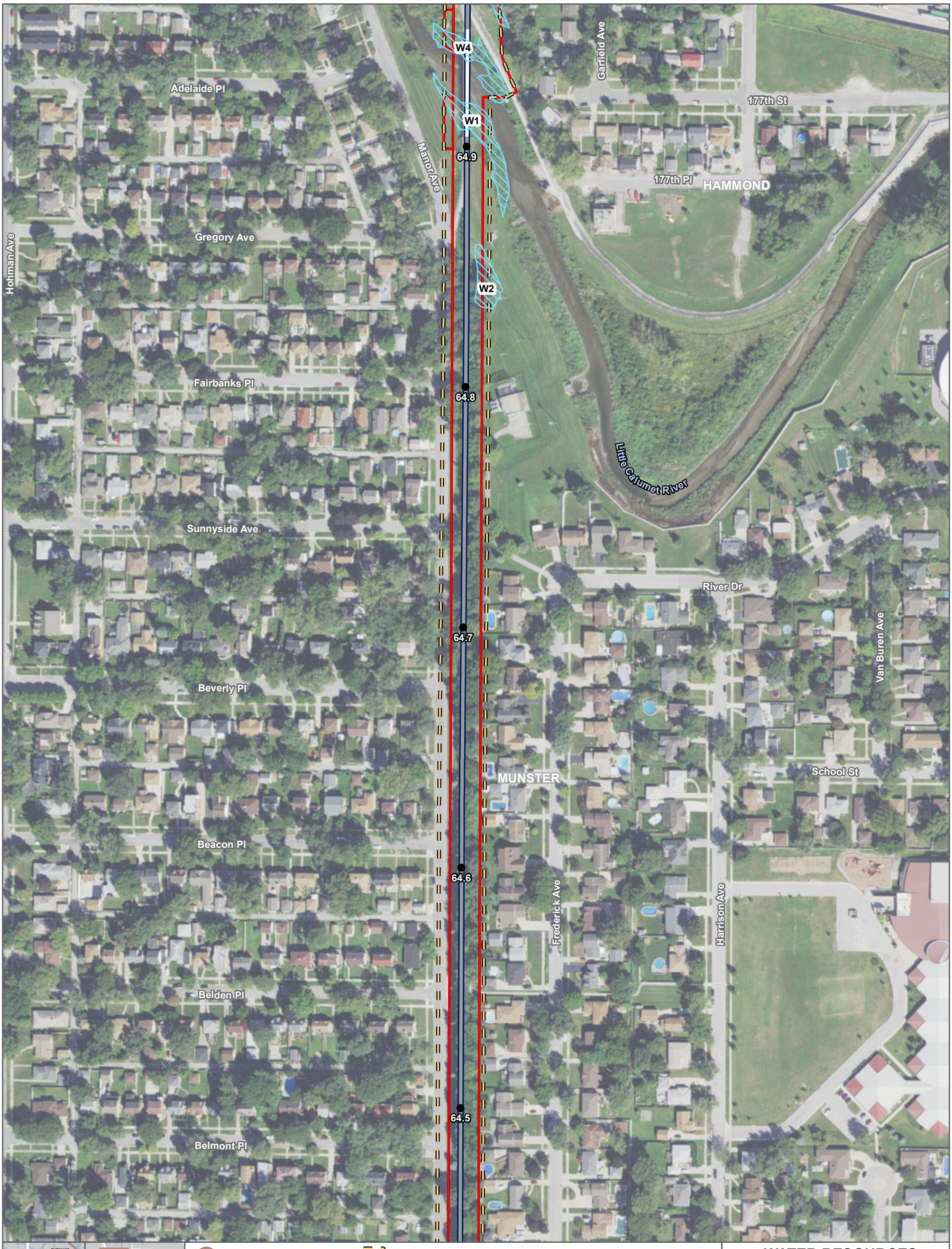



Existing Station
Proposed Station
Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative
On Structure Alternative
Milepost
Milepost Stationing

Environmental Survey Area
Project Footprint

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Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

0 200
FEET

WEST LAKE CORRIDOR

SHEET 9 OF 18

Data for Reference Only

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Existing Station

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On Structure Alternative

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Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

WEST LAKE CORRIDOR

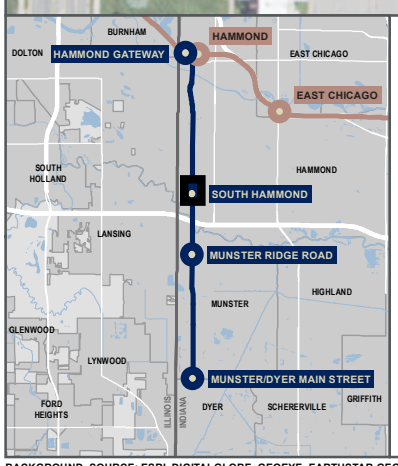
SHEET 10 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

DATA SOURCES: Environmental Systems Research Institute, Indiana Department of Environmental Management, National Resource Commission, Northern Indiana Commuter Transportation District, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish & Wildlife Service

Fernwood St
Lyman Ave
Cherry St
169th St
65.9
Lawndale St
Roselawn St
HAMMOND
65.8
170th St
E 170th St
Ben Levin Dr
Meadow Lane Ave
Coolidge St
Hohman Ave
Harrison Ave
65.7
Van Buren Ave
171st St
SOUTH HAMMOND
65.6
172nd St
W10
172nd Pl
65.5
W8

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Milepost Stationing

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Project Footprint

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Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

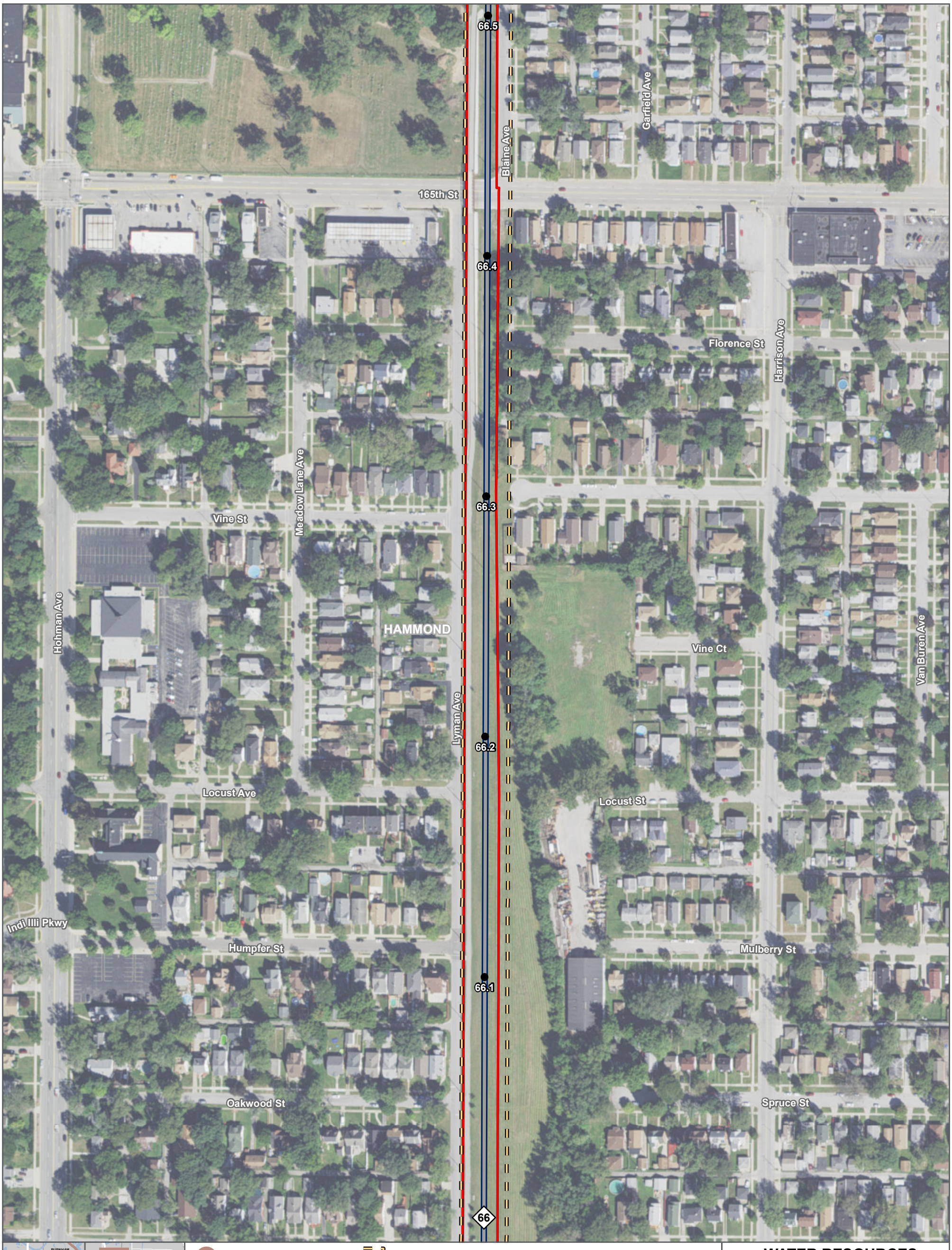
N

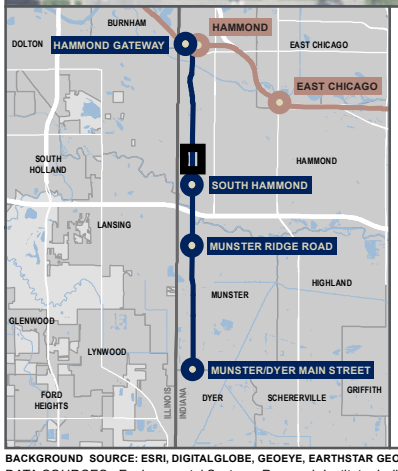
0 200
FEET

WEST LAKE CORRIDOR

SHEET 11 OF 18

Data for Reference Only




Existing Station

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At-Grade Alternative

On Structure Alternative

Milepost

Milepost Stationing

Environmental Survey Area

Project Footprint

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Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

0 200

FEET

WEST LAKE CORRIDOR

SHEET 12 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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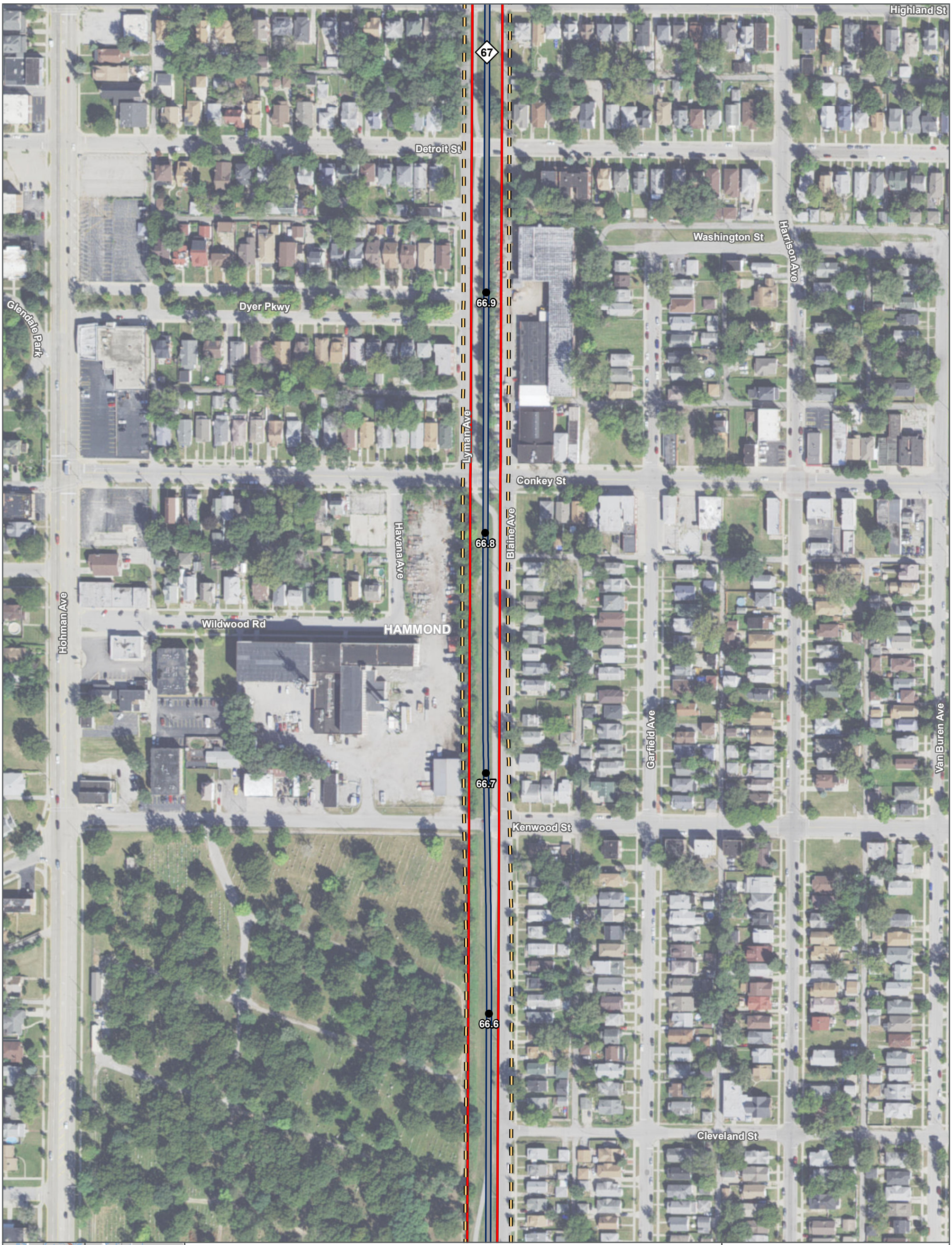


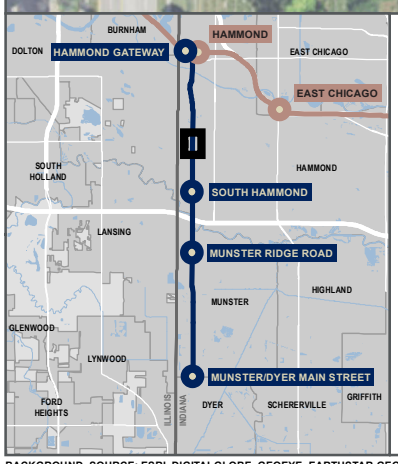


Existing Station

Proposed Station

Existing South Shore Line

**FEIS Preferred Alternative**

At-Grade Alternative

On Structure Alternative

Milepost

Milepost Stationing

Environmental Survey Area

Project Footprint

**Delineated Wetlands**

Jurisdictional

Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

WEST LAKE CORRIDOR

SHEET 13 OF 18

Data for Reference Only

BACKGROUND SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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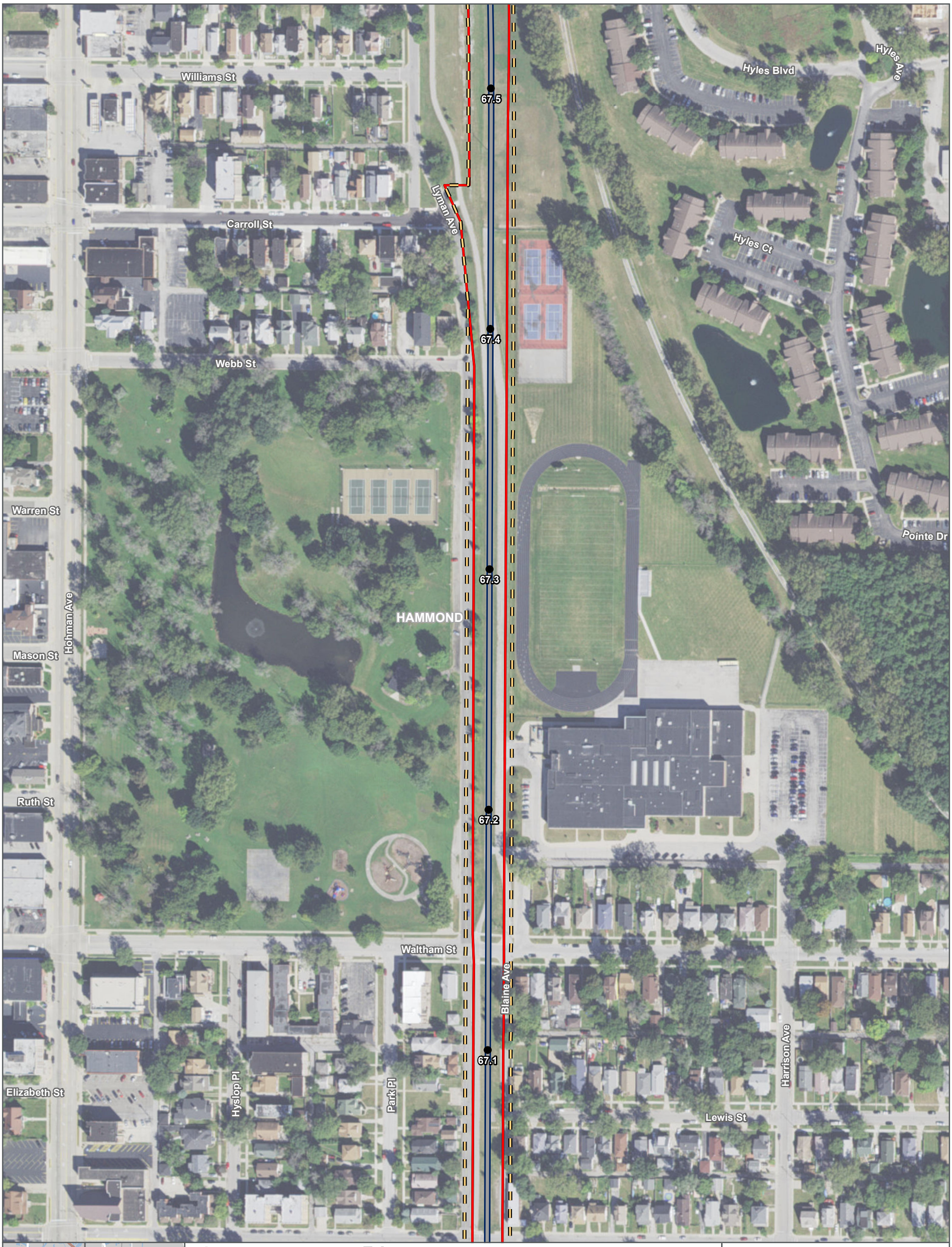


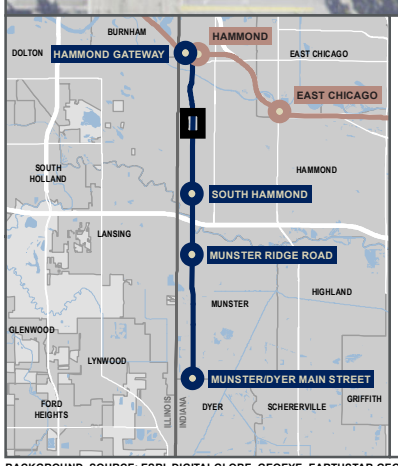


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At-Grade Alternative

On Structure Alternative

Milepost

Milepost Stationing

Environmental Survey Area

Project Footprint

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Jurisdictional

Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

0 200

FEET

WEST LAKE CORRIDOR

SHEET 14 OF 18

Data for Reference Only

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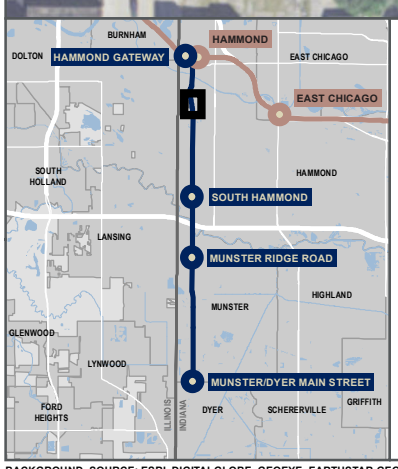
Rimbach St
Hohman Ave
Muenich Ct
Russell St
Clinton St
Condit St
Doty St
Willow Ct
State St
Sibley St
Oakley Ave
Fayette St
Enright Dr
Douglas St
HAMMOND
Lyman Ave
Ogden St
Hyles Blvd
Pointe Dr
68
67.9
67.8
67.7
67.6




Existing Station
Proposed Station
Existing South Shore Line

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At-Grade Alternative
On Structure Alternative
Milepost
Milepost Stationing

Environmental Survey Area
Project Footprint

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Non-Jurisdictional

# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200
FEET

WEST LAKE CORRIDOR

SHEET 15 OF 18

Data for Reference Only

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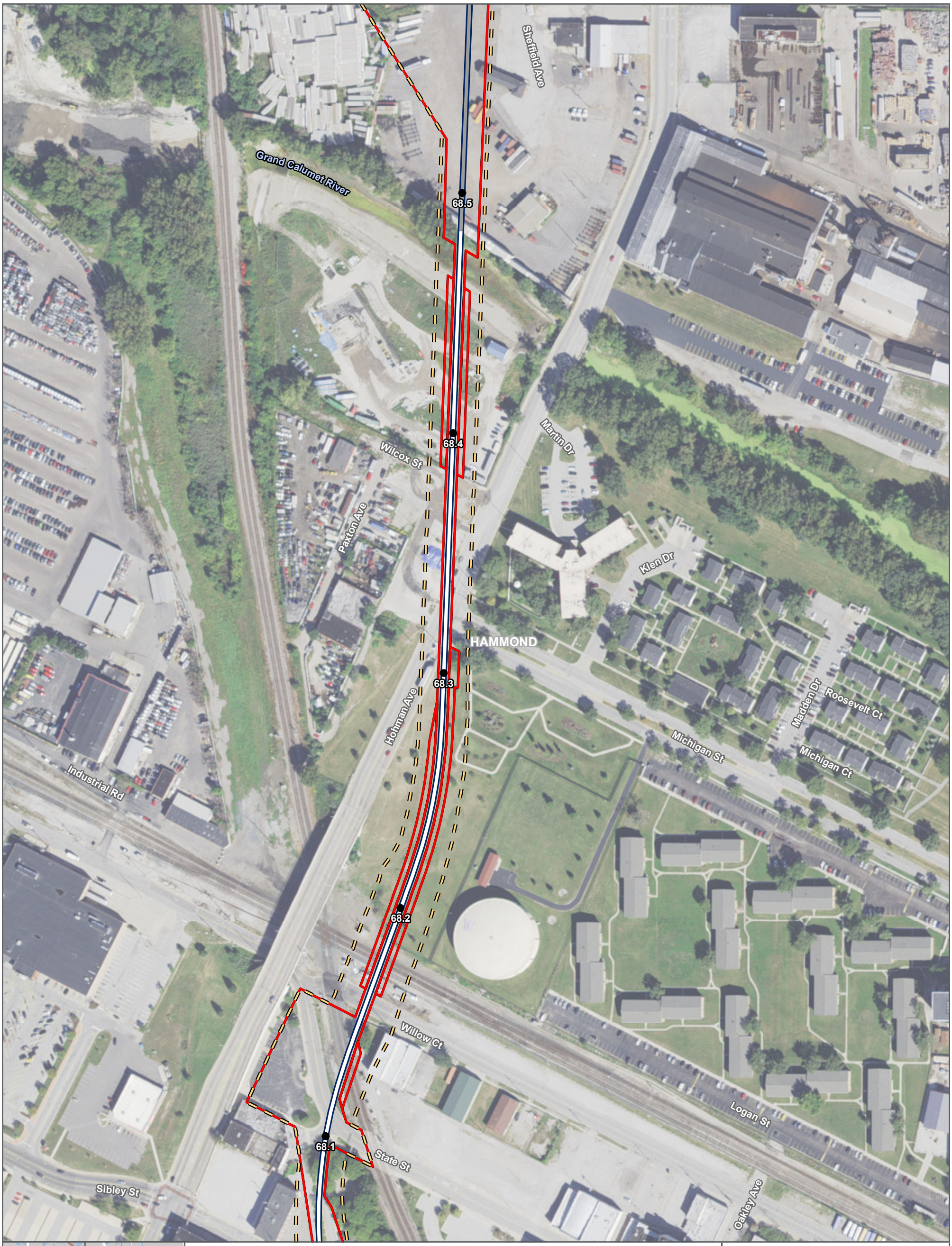


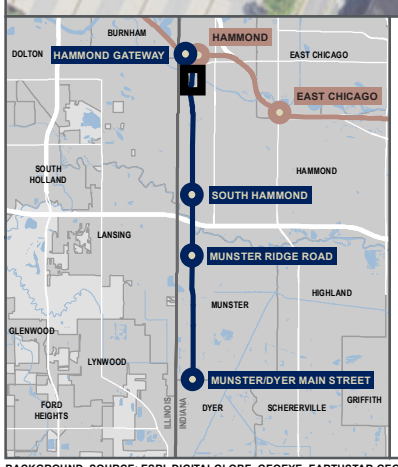


- Existing Station
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# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

0 200

FEET

WEST LAKE CORRIDOR

SHEET 16 OF 18

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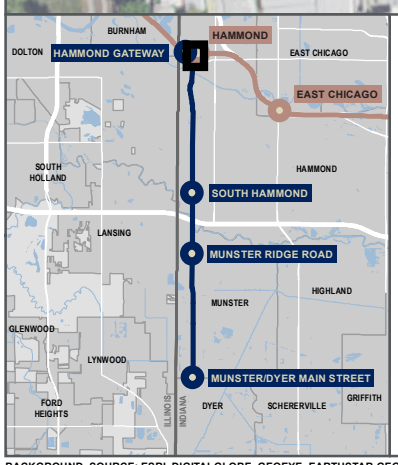
Huehn St
Grover Ave
Wabash Ave
Sheffield Ave
Gostlin St
Gostlin St
Brunswick St
HAMMOND
68.9
Hanover St
Sheffield Ave
Hohman Ave
312
Hudson St
68.8
Marble St
HAMMOND
Chicago St
68.7
Chicago St
Towle Ave
Cameron Ave
68.6
Hoffman St

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Milepost Stationing

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# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

N

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FEET

WEST LAKE CORRIDOR

SHEET 17 OF 18

Data for Reference Only

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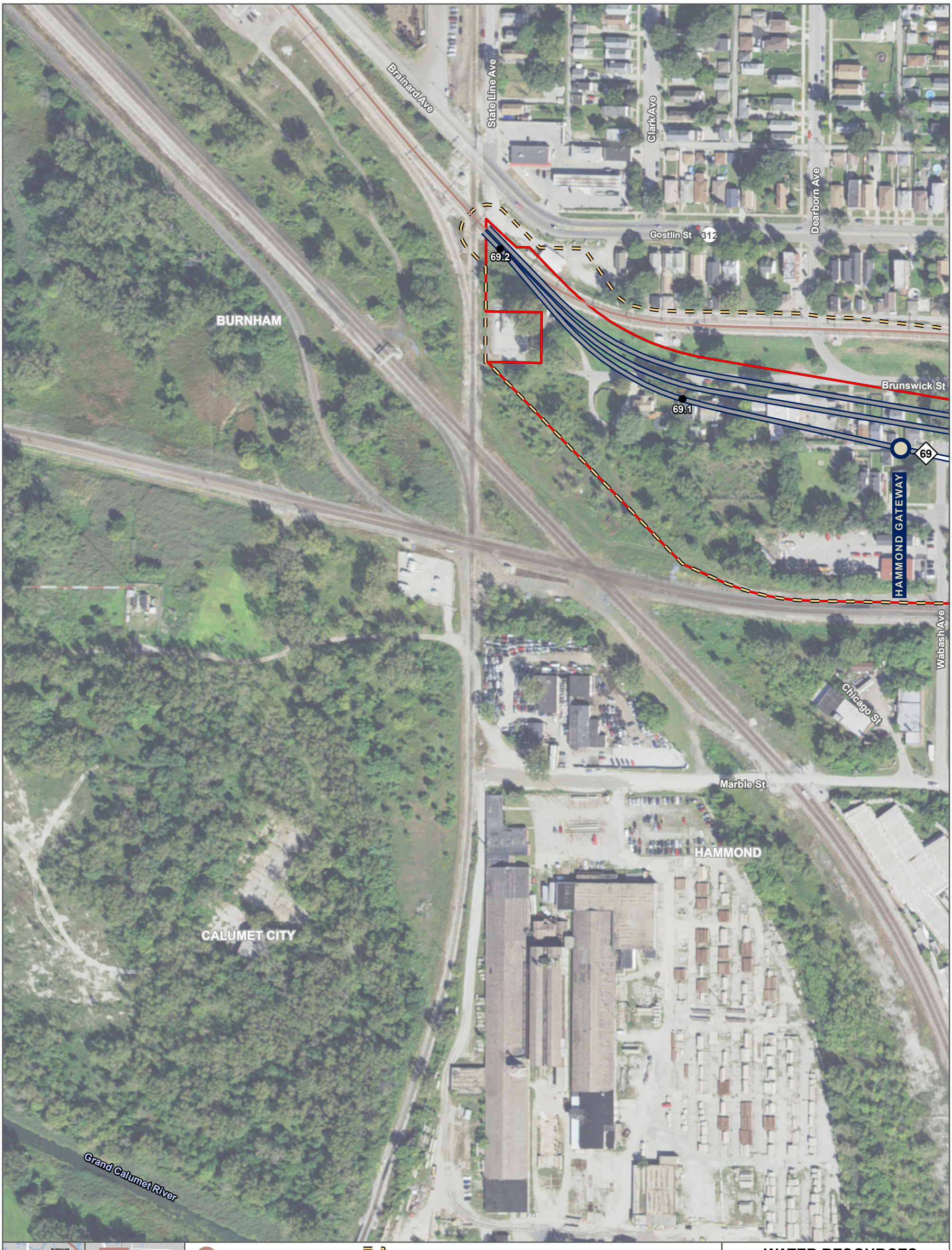


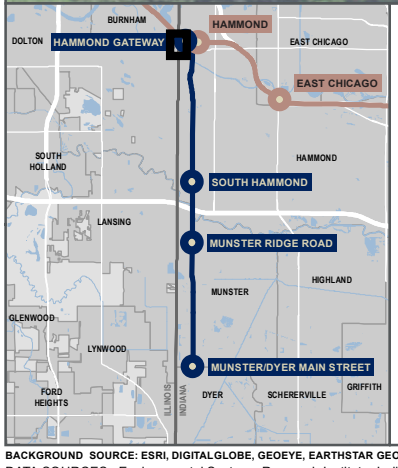


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# WATER RESOURCES TECHNICAL REPORT EXHIBIT 4: DELINEATED WETLANDS

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WEST LAKE CORRIDOR

SHEET 18 OF 18

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# Appendix B. USACE Wetland Determination Data Forms

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# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/16/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 9

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic? present?

## SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

## VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 = Total Cover | | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *sambucus nigra* | 50 | Y | FACW |
| 2 *frangula alnus* | 25 | Y | FACW |
| 3 *pyrus communis* | 5 | N | |
| 4 | | | |
| 5 | | | |
| | 80 = Total Cover | | |
| Herb stratum (Plot size: ) | | | |
| 1 *lythrum salicaria* | 80 | Y | OBL |
| 2 *epilobium coloratum* | 15 | N | OBL |
| 3 *persicaria amphibia* | 10 | N | OBL |
| 4 *geum laciniatum* | 10 | N | FACW |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 115 = Total Cover | | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 = Total Cover | | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | | |
|---|---|---|---|---|
| OBL species | 105 | x 1 = | 105 | |
| FACW species | 85 | x 2 = | 170 | |
| FAC species | 0 | x 3 = | 0 | |
| FACU species | 0 | x 4 = | 0 | |
| UPL species | 0 | x 5 = | 0 | |
| Column totals | 190 | (A) | 275 | (B) |

Prevalence Index = B/A = 1.45

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 9

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 24+ | 2.5Y 3/1 | 96 | 2.5Y4/4 | 4 | RM | M | Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay loam

Hydric Indicator: Yes

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/16/15

Applicant/Owner: | State: IN | Sampling Point: Upland 9

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |
| **Is the sampled area within a wetland?** | N |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *Acer saccharinum* | 5 | Y | FACW |
| 2 *ulmus pumila* | 5 | Y | UPL |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 10 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 | 8 | Y | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 8 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *agrostis hyemalis* | 40 | Y | FAC |
| 2 *Rubus occidentalis* | 40 | Y | |
| 3 *cirsium arvense* | 40 | Y | FACU |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 120 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 5 | x 2 = | 10 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 40 | x 4 = | 160 |
| UPL species | 5 | x 5 = | 25 |
| Column totals | 90 (A) | | 315 (B) |

Prevalence Index = B/A = 3.50

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

## SOIL

**Sampling Point:** Upland 9

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 13 | 2.5Y 3/2 | 100 | | | | | Silty Clay Loam | |
| 13 - 24+ | 2.5Y 4/1 | 80 | 10YR 4/6 | 15 | RM | M | Silty Clay Loam | |
| | | | 7/10 Y | 5 | RM | M | Silty Clay Loam | Gley |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

No signs of iron in the top 12" of soil

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No visible signs of hydrology

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 10/27/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 40

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: 41.5237 | Long: -87.5231 | Datum:

Soil Map Unit Name: Bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *salix interior* | 35 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 35 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *lythrum salicaria* | 80 | Y | OBL |
| 2 *juncus dudleyi* | 10 | N | FACW |
| 3 *epilobium ciliatum* | 5 | N | FACW |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 95 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | | |
|---|---|---|---|---|
| OBL species | 80 | x 1 = | 80 | |
| FACW species | 50 | x 2 = | 100 | |
| FAC species | 0 | x 3 = | 0 | |
| FACU species | 0 | x 4 = | 0 | |
| UPL species | 0 | x 5 = | 0 | |
| Column totals | 130 | (A) | 180 | (B) |

Prevalence Index = B/A = 1.38

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 40

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 14 | 2.5Y 2.5/1 | 100 | | | | | Clay | |
| 14 - 20+ | 2.5Y 4/1 | 75 | 10YR 6/8 | 15 | RM | M | Sandy Clay | |
| | 2.5Y 2.5/1 | 10 | | | | | Sandy Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Difficult to bore. Clay

Bono silty clay

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 10/27/15

Applicant/Owner: | State: IN | Sampling Point: Upland 40

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

## SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |

**Is the sampled area within a wetland?** N

If yes, optional wetland site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

Active Agricultural land is the dominant upland condition

## VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 0 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 0 (A) | | 0 (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

**SOIL**

**Sampling Point:** Upland 40

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-19+ | 2.5Y 6/3 | 5 | | | | | Sandy Clay Loam | |
| | 2.5Y 3/2 | 64 | | | | | Sandy Clay Loam | |
| | 2.5Y 7/8 | 1 | | | | | Sandy Clay Loam | |
| | 2.5Y 5/2 | 30 | | | | | Sandy Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Dense Clay

Depth (inches): 19

**Hydric soil present?** N

Remarks:

Dense clay, unable to bore deeper

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 10/27/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 39

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: 41.5248 | Long: -87.5229 | Datum:

Soil Map Unit Name: Bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

ditch

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 *salix fragilis* | 35 | Y | FAC |
| 2 *populus deltoides* | 5 | N | FAC |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 40 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 *salix interior* | 30 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 30 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *phragmites australis* | 100 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 130 | x 2 = | 260 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 170 (A) | | 380 (B) |

Prevalence Index = B/A = 2.24

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 39

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 - 4 | 2.5Y 2.5/1 | 50 | | | | | Clay Loam | |
| | 2.5Y 7/3 | 35 | 10YR 4/6 | 5 | CS | M | Loamy Sand | |
| 4 - 8 | 2.5Y 7/3 | 68 | 10YR 4/6 | 2 | CS | M | Loamy Sand | |
| | 2.5Y 2.5/1 | 30 | | | | | Loamy Sand | |
| 8 - 28+ | 2.5Y 5/4 | 65 | 2.5YR 6/8 | 5 | RM | M | Loamy Sand | |
| | 2.5Y 3/2 | 30 | | | | | Loamy Sand | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | | No | X | Depth (inches): |
| Water table present? | Yes | X | No | | Depth (inches): 25 |
| Saturation present? (includes capillary fringe) | Yes | X | No | | Depth (inches): 10 |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 10/27/15

Applicant/Owner: | State: IN | Sampling Point: Upland 39

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |

**Is the sampled area within a wetland?** N

If yes, optional wetland site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

Active Agricultural land is the dominant upland condition

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 0 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 0 (A) | | 0 (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

**SOIL**

**Sampling Point:** Upland 39

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-19+ | 2.5Y 6/3 | 5 | | | | | Sandy Clay Loam | |
| | 2.5Y 3/2 | 64 | | | | | Sandy Clay Loam | |
| | 2.5Y 7/8 | 1 | | | | | Sandy Clay Loam | |
| | 2.5Y 5/2 | 30 | | | | | Sandy Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Dense Clay

Depth (inches): 19

**Hydric soil present?** N

Remarks:

Dense clay, unable to bore deeper

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 10/27/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 38

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: 41.5246 | Long: -87.5182 | Datum:

Soil Map Unit Name: Bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

forested ditch

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 *acer saccharinum* | 20 | Y | FACW |
| 2 *poplar deltoides* | 20 | Y | |
| 3 *prunus serotina* | 10 | Y | FACU |
| 4 | | | |
| 5 | | | |
| | 50 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *cornus stolonifera* | 10 | Y | |
| 2 *salix interior* | 10 | Y | FACW |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 20 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *phragmites australis* | 10 | Y | FACW |
| 2 *equisetum arvense* | 5 | Y | FAC |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 15 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *rubus occidentalis* | 5 | Y | |
| 2 | | | |
| | 5 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 40 | x 2 = | 80 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 55 (A) | | 135 (B) |

Prevalence Index = B/A = 2.45

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 38

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 - 4 | 2.5Y 2.5/1 | 50 | | | | | Clay Loam | |
| | 2.5Y 7/3 | 35 | 10YR 4/6 | 5 | CS | M | Loamy Sand | |
| 4 - 8 | 2.5Y 7/3 | 68 | 10YR 4/6 | 2 | CS | M | Loamy Sand | |
| | 2.5Y 2.5/1 | 30 | | | | | Loamy Sand | |
| 8 - 28+ | 2.5Y 5/4 | 65 | 2.5YR 6/8 | 5 | RM | M | Loamy Sand | |
| | 2.5Y 3/2 | 30 | | | | | Loamy Sand | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | | No | X | Depth (inches): |
| Water table present? | Yes | X | No | | Depth (inches): 25 |
| Saturation present? (includes capillary fringe) | Yes | X | No | | Depth (inches): 10 |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 10/27/15

Applicant/Owner: | State: IN | Sampling Point: Upland 38

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

## SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |

**Is the sampled area within a wetland?** N

If yes, optional wetland site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

Active Agricultural land is the dominant upland condition

## VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 0 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 0 (A) | | 0 (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

**SOIL**

**Sampling Point:** Upland 38

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-19+ | 2.5Y 6/3 | 5 | | | | | Sandy Clay Loam | |
| | 2.5Y 3/2 | 64 | | | | | Sandy Clay Loam | |
| | 2.5Y 7/8 | 1 | | | | | Sandy Clay Loam | |
| | 2.5Y 5/2 | 30 | | | | | Sandy Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Dense Clay

Depth (inches): 19

**Hydric soil present?** N

Remarks:

Dense clay, unable to bore deeper

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: **NICTD West Lake Corridor** City/County: **Lake County** Sampling Date: **17-Sep-15**

Applicant/Owner: State: **IN** Sampling Point: **Wetland 11**

Investigator(s): **Anna Hochhalter and Scott Beckmeyer** Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none:

Slope %: Lat: Long: Datum:

Soil Unit Name: **Bono silty clay** NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No

Are Vegetation Soil or hydrology Significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation Soil or hydrology Naturally problematic? (if needed, explain any answers in Remarks.)

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

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No | **Is the Sampling Area within a Wetland?** | **Yes x No** |
| Hydric Soils Present? | Yes | No | | |
| Wetland Hydrology Present? | Yes | No | | |

Remarks:
Wetland investigation used Approach B, which entails identifying the dominant species and does not include collecting soil samples or calculating floristic quality.

### VEGETATION - Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Sapling/Shrub Stratum (Plot size: 15ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Herb Stratum (Plot size: 5ft) | | | |
| 1. *phragmites australis* | | | FACW+ |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| 6. -- | | | -- |
| 7. -- | | | -- |
| 8. -- | | | -- |
| 9. -- | | | -- |
| 10. -- | | | -- |
| Total Cover: | | | |
| Woody Vine Stratum (Plot size: 15ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| Total Cover: | | | |

**Dominance Test Worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | 0 |
| FACW species | x 2 = | 0 |
| FAC species | x 3 = | 0 |
| FACU species | x 4 = | 0 |
| UPL species | x 5 = | 0 |
| Column Totals **0** (A) | | **0** (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**
- Dominance Test is >50%
- Prevalence Index is ≤3.0*
- Morphological Adaptations* (Provide supporting data in remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

*Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes No**

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

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/17/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 12

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

## SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

## VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *phragmites australis* | 90 | Y | FACW |
| 2 *lythrum salicaria* | 10 | N | OBL |
| 3 *juncus dudleyi* | 5 | N | FACW |
| 4 *cyperus erythrorhizos* | 5 | N | OBL |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 110 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 15 | x 1 = | 15 |
| FACW species | 95 | x 2 = | 190 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 110 (A) | | 205 (B) |

Prevalence Index = B/A = 1.86

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 12

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 8 | 2.5Y 2.5/1 | 30 | 2.5Y 6/4 | 10 | RM | M | Silty Clay Loam | |
| | 6/10Y | 60 | | | | | Silty Clay Loam | Gleyed |
| 8+ | | | | | | | | Gravel |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Gravel

Depth (inches): 8

**Hydric soil present?** Y

Remarks:

Hydric Soils apparent in upper 8 inches.
Mapped Soil: Bono silty clay loam.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | X | No | | Depth (inches): | |
| Water table present? | Yes | X | No | | Depth (inches): | |
| Saturation present? (includes capillary fringe) | Yes | X | No | | Depth (inches): | |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: | Sampling Date: 9/17/15

Applicant/Owner: | State: | Sampling Point: Upland 12

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: bono silty clay | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | N | **Is the sampled area within a wetland?** | N |
| Indicators of wetland hydrology present? | N | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *poa pratensis* | 100 | Y | FAC |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 100 | x 3 = | 300 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 100 (A) | | 300 (B) |

Prevalence Index = B/A = 3.00

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 12

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 - 4 | 2.5Y 3/1 | 97 | 2.5Y6/8 | 3 | RM | M | Silty Clay Loam | |
| 4 - 9 | 2.5Y 5/2 | 70 | 2.5Y 6/8 | 5 | RM | M | Silty Clay Loam | |
| | 2.5Y 3/1 | 25 | | | | | Silty Clay Loam | |
| 9 - 12 | 2.5Y 3/1 | 95 | 2.5Y 6/8 | 1 | RM | M | Silty Clay Loam | |
| | 2.5Y 5/2 | 4 | | | | | Silty Clay Loam | |
| 12 - 22 | 2.5Y 3/1 | 95 | 2.5Y 6/8 | 5 | RM | M | Silty Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

Soil: Bono silty clay loam

Highly disturbed soil in a development. While soils contain redox concentrations, soil is not indicative of a true hydric soil.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes ___ | No | X | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes ___ | No | X | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland of wetland

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: **NICTD West Lake Corridor** City/County: **Lake County** Sampling Date: **28-Sep-15**

Applicant/Owner: State: **IN** Sampling Point: **Wetland 17**

Investigator(s): **Anna Hochhalter and Scott Beckmeyer** Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none:

Slope %: Lat: Long: Datum:

Soil Unit Name: **Rensselaer loam, calcareous subsoil variant, Bono silty clay** NWI Classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No

Are Vegetation Soil or hydrology Significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation Soil or hydrology Naturally problematic? (if needed, explain any answers in Remarks.)

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

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No | **Is the Sampling Area within a Wetland?** | **Yes x No** |
| Hydric Soils Present? | Yes | No | | |
| Wetland Hydrology Present? | Yes | No | | |

Remarks:
Wetland investigation used Approach B, which entails identifying the dominant species and does not include collecting soil samples or calculating floristic quality.

### VEGETATION - Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Sapling/Shrub Stratum (Plot size: 15ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Herb Stratum (Plot size: 5ft) | | | |
| 1. *phragmites australis* | | | FACW+ |
| 2. *lythrum salicaria* | | | OBL |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| 6. -- | | | -- |
| 7. -- | | | -- |
| 8. -- | | | -- |
| 9. -- | | | -- |
| 10. -- | | | -- |
| Total Cover: | | | |
| Woody Vine Stratum (Plot size: 15ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| Total Cover: | | | |

**Dominance Test Worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | 0 |
| FACW species | x 2 = | 0 |
| FAC species | x 3 = | 0 |
| FACU species | x 4 = | 0 |
| UPL species | x 5 = | 0 |
| Column Totals **0** (A) | | **0** (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**
- Dominance Test is >50%
- Prevalence Index is ≤3.0*
- Morphological Adaptations* (Provide supporting data in remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

*Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes No**

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

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 09/30/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 36

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: 41.5437 | Long: -87.5168 | Datum:

Soil Map Unit Name: Rensselaer loam, calcareous subsoil variant | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

forested ditch

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 *poplar deltoides* | 40 | Y | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 40 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *phragmites australis* | 50 | Y | FACW |
| 2 *typha angustifolia* | 30 | Y | OBL |
| 3 *lythrum salicaria* | 10 | N | OBL |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 90 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 *rubus occidentalis* | 5 | Y | |
| 2 | | | |
| | 5 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 40 | x 1 = | 40 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 90 (A) | | 140 (B) |

Prevalence Index = B/A = 1.56

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL** **Sampling Point:** Wetland 36

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**
Type: _____
Depth (inches): _____

**Hydric soil present?** Y

Remarks:
standing water prevented soil sample. Rensselaer loam is mapped soil

**mapped soils:**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | X | No | ___ | Depth (inches): | ___ |
| Water table present? | Yes | ___ | No | ___ | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | ___ | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: **NICTD West Lake Corridor** City/County: **Lake County** Sampling Date: **30-Sep-15**

Applicant/Owner: _____ State: **IN** Sampling Point: **Wetland 37**

Investigator(s): **Anna Hochhalter and Scott Beckmeyer** Section, Township, Range: _____

Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none: _____

Slope %: _____ Lat: 41.54434 Long: -87.518 Datum: _____

Soil Unit Name: **Rensselaer loam, calcareous subsoil variant** NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____

Are Vegetation _____ Soil _____ or hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____ Soil _____ or hydrology _____ Naturally problematic? (if needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No _____ | **Is the Sampling Area within a Wetland?** **Yes x** **No _____** |
| Hydric Soils Present? | Yes _____ | No _____ | |
| Wetland Hydrology Present? | Yes _____ | No _____ | |

Remarks:
Wetland investigation used Approach B, which entails identifying the dominant species and does not include collecting soil samples or calculating floristic quality.

### VEGETATION - Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30ft) | | | |
| 1. *salix interior* | **50** | | #N/A |
| 2. *populus deltoides* | **5** | | FAC+ |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Sapling/Shrub Stratum (Plot size: 15ft) | | | |
| 1. *cornus stononlifera* | **10** | | #N/A |
| 2. *fraxinus pennsylvanica* | **5** | | FACW |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Herb Stratum (Plot size: 5ft) | | | |
| 1. *typha angustifolia* | **85** | | OBL |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| 6. -- | | | -- |
| 7. -- | | | -- |
| 8. -- | | | -- |
| 9. -- | | | -- |
| 10. -- | | | -- |
| Total Cover: | | | |
| Woody Vine Stratum (Plot size: 15ft) | | | |
| 1. *Vitris riparia* | *5* | | #N/A |
| 2. -- | | | -- |
| Total Cover: | | | |

**Dominance Test Worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | | x 5 = | 0 |
| Column Totals | **0** (A) | | **0** (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**
_____ Dominance Test is >50%
_____ Prevalence Index is ≤3.0*
_____ Morphological Adaptations* (Provide supporting data in remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation (Explain)
*Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes _____** **No _____**

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

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: **NICTD West Lake Corridor** City/County: **Lake County** Sampling Date: **30-Sep-15**

Applicant/Owner: _____ State: **IN** Sampling Point: **Wetland 35**

Investigator(s): **Anna Hochhalter and Scott Beckmeyer** Section, Township, Range: _____

Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none: _____

Slope %: _____ Lat: 41.544721 Long: -87.51663 Datum: _____

Soil Unit Name: **Rensselaer loam, calcareous subsoil variant** NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____

Are Vegetation _____ Soil _____ or hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____ Soil _____ or hydrology _____ Naturally problematic? (if needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No _____ | **Is the Sampling Area within a Wetland?** **Yes x** **No _____** |
| Hydric Soils Present? | Yes _____ | No _____ | |
| Wetland Hydrology Present? | Yes _____ | No _____ | |

Remarks:
Wetland investigation used Approach B, which entails identifying the dominant species and does not include collecting soil samples or calculating floristic quality.

### VEGETATION - Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30ft) | | | |
| 1. *salix interior* | **50** | | #N/A |
| 2. *populus deltoides* | **5** | | FAC+ |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Sapling/Shrub Stratum (Plot size: 15ft) | | | |
| 1. *cornus stolonifera* | **10** | | FACW |
| 2. *fraxinus pennsylvanica* | **5** | | FACW |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | | | |
| Herb Stratum (Plot size: 5ft) | | | |
| 1. *typha angustifolia* | **85** | | OBL |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| 6. -- | | | -- |
| 7. -- | | | -- |
| 8. -- | | | -- |
| 9. -- | | | -- |
| 10. -- | | | -- |
| Total Cover: | | | |
| Woody Vine Stratum (Plot size: 15ft) | | | |
| 1. *vitis riparia* | *5* | | FACW- |
| 2. -- | | | -- |
| Total Cover: | | | |

**Dominance Test Worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of | | Multiply by: | |
|---|---|---|---|
| OBL species | _____ | x 1 = | 0 |
| FACW species | _____ | x 2 = | 0 |
| FAC species | _____ | x 3 = | 0 |
| FACU species | _____ | x 4 = | 0 |
| UPL species | _____ | x 5 = | 0 |
| Column Totals | **0** (A) | | **0** (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**
_____ Dominance Test is >50%
_____ Prevalence Index is ≤3.0*
_____ Morphological Adaptations* (Provide supporting data in remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation (Explain)
*Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes x** **No _____**

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

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: **NICTD West Lake Corridor** City/County: **Lake County** Sampling Date: **30-Sep-15**

Applicant/Owner: State: **IN** Sampling Point: **Wetland 32**

Investigator(s): **Anna Hochhalter and Scott Beckmeyer** Section, Township, Range:

Landform (hillside, terrace, etc.): Local relief (concave, convex, none:

Slope %: Lat: 41.54766 Long: -87.517816 Datum:

Soil Unit Name: **rensselaer loam, calcareous subsoil variant** NWI Classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No

Are Vegetation Soil or hydrology Significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation Soil or hydrology Naturally problematic? (if needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No | **Is the Sampling Area within a Wetland?** **Yes x No** |
| Hydric Soils Present? | Yes | No | |
| Wetland Hydrology Present? | Yes | No | |

Remarks:
Wetland investigation used Approach B, which entails identifying the dominant species and does not include collecting soil samples or calculating floristic quality.

### VEGETATION - Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30ft) | | | |
| 1. *Populus deltoides* | **50** | | FAC+ |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | **50** | | |
| Sapling/Shrub Stratum (Plot size: 15ft) | | | |
| 1. *Rhamnus frangula* | **5** | | FAC+ |
| 2. *salix interior* | **5** | | #N/A |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| Total Cover: | **10** | | |
| Herb Stratum (Plot size: 5ft) | | | |
| 1. *phragmites australis* | **100** | | FACW+ |
| 2. -- | | | -- |
| 3. -- | | | -- |
| 4. -- | | | -- |
| 5. -- | | | -- |
| 6. -- | | | -- |
| 7. -- | | | -- |
| 8. -- | | | -- |
| 9. -- | | | -- |
| 10. -- | | | -- |
| Total Cover: | **100** | | |
| Woody Vine Stratum (Plot size: 15ft) | | | |
| 1. -- | | | -- |
| 2. -- | | | -- |
| Total Cover: | | | |

**Dominance Test Worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | 0 |
| FACW species | x 2 = | 0 |
| FAC species | x 3 = | 0 |
| FACU species | x 4 = | 0 |
| UPL species | x 5 = | 0 |
| Column Totals **0** (A) | | **0** (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**
- Dominance Test is >50%
- Prevalence Index is ≤3.0*
- Morphological Adaptations* (Provide supporting data in remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

*Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes No**

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

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 09/30/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 33

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: 41.5495 | Long: -87.5177 | Datum:

Soil Map Unit Name: Maumee loamy fine sand, Rensselaer loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic? present?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 *populus deltoides* | 10 | Y | FAC |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 10 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *phragmites australis* | 100 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 100 | x 2 = | 200 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 110 (A) | | 230 (B) |

Prevalence Index = B/A = 2.09

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 33

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 5 | 2.5Y 3/1 | 100 | | | | | Silty Clay Loam | |
| 5 - 7 | 5Y 2.5/1 | 75 | | | | | Clay Loam | |
| | 5Y 7/2 | 15 | 2.5Y 5/6 | 10 | RM | M | Clay Loam | |
| 17 - 22 | 2.5Y 3/2 | 100 | | | | | Loamy Sand | |
| 22 - 25+ | 2.5Y5/2 | 100 | | | | | Loamy Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Maumee loamy fine sand

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | | No | X | Depth (inches): | |
| Water table present? | Yes | | No | X | Depth (inches): | |
| Saturation present? (includes capillary fringe) | Yes | X | No | | Depth (inches): | |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/30/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 34

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: 41.551335 | Long: -87.51837 | Datum:

Soil Map Unit Name: Maumee loamy fine sand | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 = Total Cover | | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *cornus stolonifer* | 20 | Y | |
| 2 *frangula alnus* | 5 | Y | FACW |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 25 = Total Cover | | |
| Herb stratum (Plot size: ) | | | |
| 1 *lythrum salicaria* | 30 | Y | OBL |
| 2 *phragmites australis* | 30 | Y | FACW |
| 3 *geum laciniatum* | 20 | Y | FACW |
| 4 *typha angustifolia* | 10 | N | OBL |
| 5 *scirpus atrovirens* | 2 | N | OBL |
| 6 *juncus torreyi* | 2 | N | FACW |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 94 = Total Cover | | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 = Total Cover | | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 80.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 42 | x 1 = | 42 |
| FACW species | 57 | x 2 = | 114 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 99 (A) | | 156 (B) |

Prevalence Index = B/A = 1.58

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 34

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 5 | 2.5Y 3/1 | 100 | | | | | Silty Clay Loam | |
| 5 - 7 | 5Y 2.5/1 | 75 | | | | | Clay Loam | |
| | 5Y 7/2 | 15 | 2.5Y 5/6 | 10 | RM | M | Clay Loam | |
| 17 - 22 | 2.5Y 3/2 | 100 | | | | | Loamy Sand | |
| 22 - 25+ | 2.5Y5/2 | 100 | | | | | Loamy Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Maumee loamy fine sand

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | | No | X | Depth (inches): | |
| Water table present? | Yes | | No | X | Depth (inches): | |
| Saturation present? (includes capillary fringe) | Yes | X | No | | Depth (inches): | |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 2

Investigator(s): Anna Hochhalter, Scott Beckmeyer, Cheryl Nash | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Urban Land | NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *quercus macrocarpa* | 40 | Y | FAC |
| 2 *Ulmus rubra* | 30 | Y | FAC |
| 3 *crataegus mollis* | 10 | N | FAC |
| 4 *quercus alba* | 5 | N | FACU |
| 5 | | | |
| | 85 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *Acer negundo* | 30 | Y | FAC |
| 2 *Fraxinus pennsylvanica* | 10 | Y | FACW |
| 3 *Ulmus rubra* | 5 | N | FAC |
| 4 | | | |
| 5 | | | |
| | 45 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *parthenocissus quinquefolia* | 20 | Y | FACU |
| 2 *phalaris arundinacea* | 10 | Y | FACW |
| 3 *geum laciniatum* | 5 | N | FACW |
| 4 *persicaria hydropiper* | 5 | N | OBL |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 40 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 *vitis riparia* | 10 | Y | FACW |
| 2 | | | |
| | 10 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 85.71% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | | |
|---|---|---|---|---|
| OBL species | 5 | x 1 = | 5 | |
| FACW species | 35 | x 2 = | 70 | |
| FAC species | 115 | x 3 = | 345 | |
| FACU species | 25 | x 4 = | 100 | |
| UPL species | 0 | x 5 = | 0 | |
| Column totals | 180 | (A) | 520 | (B) |

Prevalence Index = B/A = 2.89

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 2

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 5 | 10YR 4/1 | 75 | 10YR 7/8 | 20 | RM | M | Clay Loam | |
| | | | 7/10 BG | 5 | | | Clay Loam | Gley |
| 5 - 27+ | 10YR 4/1 | 50 | 10YR 7/8 | 40 | RM | M | Silty Clay Loam | |
| | | | 7/10 BG | 10 | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay loam

Hydric Rating: Yes

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IL | Sampling Point: Upland 2

Investigator(s): Anna Hochhalter, Scott Beckmeyer, Cheryl Nash | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | **Is the sampled area within a wetland?** | N |
| Hydric soil present? | Y | If yes, optional wetland site ID: | |
| Indicators of wetland hydrology present? | N | | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *Echinochloa crus-galli* | 30 | Y | FACW |
| 2 *agrostis gigantea* | 30 | Y | FACW |
| 3 *setaria pumila* | 30 | Y | FAC |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 90 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 90 (A) | | 210 (B) |

Prevalence Index = B/A = 2.33

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 2

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 27+ | 10YR 3/1.5 | 90 | 5YR 5/8 | 3 | RM | M | Silty Clay Loam | |
| | ROCK | 7 | | | | | | Rock/Asphault |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Mapped Soil: Bono

Emankment for Monon Trail, Highly Disturbed

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes ___ | No | X | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes ___ | No | X | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 1

Investigator(s): Anna Hochhalter, Scott Beckmeyer, Cheryl Nash | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: | NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *persicaria lapathifolia* | 40 | Y | FACW |
| 2 *phalaris arundinacea* | 30 | Y | FACW |
| 3 *ipomoea hederacea* | 30 | Y | FAC |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 70 | x 2 = | 140 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 100 (A) | | 230 (B) |

Prevalence Index = B/A = 2.30

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 1

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 15 | 10YR 3/1.5 | 97 | 5YR 5/8 | 3 | RM | M | Silty Clay Loam | |
| 15 - 27+ | 10YR 3/1.5 | 97 | 5YR 5/8 | 3 | RM | M | Silty Clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay loam

Hydric Rating: Yes

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NITCD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Upland 1

Investigator(s): Anna Hochhalter, Scott Beckmeyer, Cheryl Nash | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic? present?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | **Is the sampled area within a wetland?** | N |
| Hydric soil present? | Y | If yes, optional wetland site ID: | |
| Indicators of wetland hydrology present? | N | | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *Echinochloa crus-galli* | 30 | Y | FACW |
| 2 *agrostis gigantea* | 30 | Y | FACW |
| 3 *setaria pumila* | 30 | Y | FAC |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 90 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 90 (A) | | 210 (B) |

Prevalence Index = B/A = 2.33

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 1

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 27+ | 10YR 3/1.5 | 90 | 5YR 5/8 | 3 | RM | M | Silty Clay Loam | |
| | ROCK | 7 | | | | | | Rock/Asphault |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Mapped Soil: Bono

Emankment for Monon Trail, Highly Disturbed

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 4

Investigator(s): Anna Hochhalter, Scott Beckmeyer, Cheryl Nash | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *fraxinus pennsylvanica* | 5 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 5 = Total Cover | | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *acer negundo* | 60 | Y | FAC |
| 2 *salix fragilis* | 10 | N | FAC |
| 3 *ulmus rubra* | 5 | N | FAC |
| 4 *acer saccharinum* | 5 | N | FACW |
| 5 *morus alba* | 5 | N | FAC |
| | 85 = Total Cover | | |
| Herb stratum (Plot size: ) | | | |
| 1 *lysimachia nummularia* | 25 | Y | FACW |
| 2 *phragmites australis* | 25 | Y | FACW |
| 3 *solidago gigantea* | 10 | N | FACW |
| 4 *solidago altissima* | 5 | N | FACU |
| 5 *parthenocissus quinquefolia* | 5 | N | FACU |
| 6 *symphyotrichum pilosum* | 2 | N | FACU |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 72 = Total Cover | | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 = Total Cover | | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 70 | x 2 = | 140 |
| FAC species | 80 | x 3 = | 240 |
| FACU species | 12 | x 4 = | 48 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 162 (A) | | 428 (B) |

Prevalence Index = B/A = 2.64

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 4

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 + 27+ | 2.5YR 3/1 | 95 | 2.5YR 3/3 | 5 | RM | M | Silty Clay Laom | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes | X | No | ___ | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes | X | No | ___ | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Groundwater fed wetland

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Upland 4

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |
| **Is the sampled area within a wetland?** | N |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *poa pratensis* | 50 | Y | FAC |
| 2 *vicia sativa* | 30 | Y | FACU |
| 3 *sonchus asper* | 10 | N | FACU |
| 4 *trifolium repens* | 5 | N | FACU |
| 5 *Cirsium vulgare* | 5 | N | FACU |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | 50 | x 4 = | 200 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 100 (A) | | 350 (B) |

Prevalence Index = B/A = 3.50

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

**SOIL**

**Sampling Point:** Upland 4

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0+ | | | | | | | | Gravel |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Gravel

Depth (inches): 0

**Hydric soil present?** N

Remarks:

Unable to take sample. Too much gravel in surrounding area

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 3

Investigator(s): Anna Hochhalter, Scott Beckmeyer, Cheryl Nash | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Urban land | NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 *sambucus nigra* | 5 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 5 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *phalaris arundinacea* | 40 | Y | FACW |
| 2 *persicaria lapathifolia* | 10 | Y | FACW |
| 3 *symphyotrichum pilosum* | 10 | Y | FACU |
| 4 *helianthus tuberosus* | 10 | Y | |
| 5 *eupatorium serotinum* | 10 | Y | FAC |
| 6 *ipomoea hederacea* | 2 | N | FAC |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 82 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 55 | x 2 = | 110 |
| FAC species | 12 | x 3 = | 36 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 77 (A) | | 186 (B) |

Prevalence Index = B/A = 2.42

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 3

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 24+ | 2.5YR 3/2 | 90 | 7.5YR 4/6 | 10 | RM | M | Silty Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay loams

Hydric Indicator: Yes

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

5 ft from river bank

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/14/15

Applicant/Owner: | State: IN | Sampling Point: Upland 3

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |
| **Is the sampled area within a wetland?** | N |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *poa pratensis* | 50 | Y | FAC |
| 2 *vicia sativa* | 30 | Y | FACU |
| 3 *sonchus asper* | 10 | N | FACU |
| 4 *trifolium repens* | 5 | N | FACU |
| 5 *Cirsium vulgare* | 5 | N | FACU |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 50 | x 3 = | 150 |
| FACU species | 50 | x 4 = | 200 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 100 (A) | | 350 (B) |

Prevalence Index = B/A = 3.50

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

**SOIL**

**Sampling Point:** Upland 3

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0+ | | | | | | | | Gravel |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Gravel

Depth (inches): 0

**Hydric soil present?** N

Remarks:

Unable to take sample. Too much gravel in surrounding area

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology present

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/15/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 5

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka silt loam | NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 = Total Cover | | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *populus deltoides* | 10 | Y | FAC |
| 2 *acer negundo* | 5 | Y | FAC |
| 3 *fraxinus pennsylvanica* | 5 | Y | FACW |
| 4 *salix eriocephala* | 2 | N | FACW |
| 5 | | | |
| | 22 = Total Cover | | |
| Herb stratum (Plot size: ) | | | |
| 1 *phragmites australis* | 75 | Y | FACW |
| 2 *bidens cernua* | 10 | N | OBL |
| 3 *juncus torreyi* | 5 | N | FACW |
| 4 *juncus dudleyi* | 5 | N | FACW |
| 5 *elymus virginicus* | 5 | N | FACW |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 = Total Cover | | |
| Woody vine stratum (Plot size: ) | | | |
| 1 *vitis riparia* | 3 | | FACW |
| 2 | | | |
| | 3 = Total Cover | | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | | |
|---|---|---|---|---|
| OBL species | 10 | x 1 = | 10 | |
| FACW species | 100 | x 2 = | 200 | |
| FAC species | 15 | x 3 = | 45 | |
| FACU species | 0 | x 4 = | 0 | |
| UPL species | 0 | x 5 = | 0 | |
| Column totals | 125 | (A) | 255 | (B) |

Prevalence Index = B/A = 2.04

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 5

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 10 | 2.5YR 5/2 | 90 | 2.5YR 5/6 | 3 | RM | M | Silt Loam | |
| | 6/10 Y | 7 | | | | | Silt Loam | Gley |
| 10 - 20 | 10YR 4/1 | 95 | 7YR 5/8 | 5 | RM | M | Sandy Clay Loam | |
| 20+ | | | | | | | | Rock |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: Rock

Depth (inches): 20

**Hydric soil present?** Y

Remarks:

Mapped Soil: Watseka (No hydric rating)

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes | X | No | ___ | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/17/15

Applicant/Owner: | State: IN | Sampling Point: Upland 5

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka silt loam | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic? present?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | N | **Is the sampled area within a wetland?** | N |
| Indicators of wetland hydrology present? | N | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 *alianthus altissima* | 20 | Y | |
| 2 *caltalpa speciosa* | 20 | Y | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 40 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *rhamnus frangula* | 10 | Y | |
| 2 *acer negundo* | 5 | Y | FAC |
| 3 *ulmus species* | 5 | Y | |
| 4 | | | |
| 5 | | | |
| | 20 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *poa palustris* | 80 | Y | FACW |
| 2 *solidago altissima* | 20 | Y | FACU |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *vitis riparia* | 8 | Y | FACW |
| 2 | | | |
| | 8 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 37.50% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 88 | x 2 = | 176 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 20 | x 4 = | 80 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 113 (A) | | 271 (B) |

Prevalence Index = B/A = 2.40

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 5

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 - 10 | 10YR 4/1 | 100 | | | | | Loamy Sand | No observed redo features |
| 10 - 25+ | 2.5Y 2.5/1 | 100 | | | | | Loamy Sand | No observed redo features |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

Watseka loamy fine sand

No hydric indicators

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No observed hydrology

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/15/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 6

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka silty clay loam | NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *crataegus mollis* | 30 | Y | FAC |
| 2 *fraxinus pennsylvanica* | 30 | Y | FACW |
| 3 *populus deltoides* | 5 | N | FAC |
| 4 | | | |
| 5 | | | |
| | 65 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *fraxinus pennsylvanica* | 15 | Y | FACW |
| 2 *ulmus americana* | 5 | Y | FACW |
| 3 *crataegus mollis* | 5 | Y | FAC |
| 4 | | | |
| 5 | | | |
| | 25 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *impatiens capensis* | 50 | Y | FACW |
| 2 *symphyotrichum lanceolatum* | 10 | N | FAC |
| 3 *scutellaria lateriflora* | 10 | N | OBL |
| 4 *bidens cernua* | 10 | N | OBL |
| 5 *phragmites australis* | 5 | N | FACW |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 85 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | | |
|---|---|---|---|---|
| OBL species | 20 | x 1 = | 20 | |
| FACW species | 105 | x 2 = | 210 | |
| FAC species | 50 | x 3 = | 150 | |
| FACU species | 0 | x 4 = | 0 | |
| UPL species | 0 | x 5 = | 0 | |
| Column totals | 175 | (A) | 380 | (B) |

Prevalence Index = B/A = 2.17

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

## SOIL

**Sampling Point:** Wetland 6

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 9 | 5Y 2.5/1 | 100 | | | | | Silty Clay Loam | |
| 9 - 23+ | 5Y 4/2 | 97 | 10YR 6/8 | 3 | RM | M | Silt Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Mapped Soil: Watseka (No hydric rating)

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/17/15

Applicant/Owner: | State: IN | Sampling Point: Upland 6

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Waseka silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic? present?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | N | **Is the sampled area within a wetland?** | N |
| Indicators of wetland hydrology present? | N | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 *alianthus altissima* | 20 | Y | |
| 2 *catalpa speciosa* | 20 | Y | FACU |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 40 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *rhamnus frangula* | 10 | Y | |
| 2 *acer negundo* | 5 | Y | FAC |
| 3 *ulmus species* | 5 | Y | |
| 4 | | | |
| 5 | | | |
| | 20 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *poa palustris* | 80 | Y | FACW |
| 2 *solidago altissima* | 20 | Y | FACU |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *vitis riparia* | 8 | Y | FACW |
| 2 | | | |
| | 8 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 37.50% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 88 | x 2 = | 176 |
| FAC species | 5 | x 3 = | 15 |
| FACU species | 40 | x 4 = | 160 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 133 (A) | | 351 (B) |

Prevalence Index = B/A = 2.64

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 6

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 - 10 | 10YR 4/1 | 100 | | | | | Loamy Sand | No observed redo features |
| 10 - 25+ | 2.5Y 2.5/1 | 100 | | | | | Loamy Sand | No observed redo features |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

Watseka loamy fine sand

No hydric indicators

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No observed hydrology

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/17/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 7

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka loamy fine sand | NWI Classification:

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

## SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

## VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *salix interior* | 40 | Y | FACW |
| 2 *populus deltoides* | 20 | Y | FAC |
| 3 *acer saccharinum* | 5 | N | FACW |
| 4 *morus alba* | 2 | N | FAC |
| 5 | | | |
| | 67 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *salix interior* | 40 | Y | FACW |
| 2 *fraxinus pennsylvanica* | 15 | Y | FACW |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 55 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *phragmites australis* | 50 | Y | FACW |
| 2 *lythrum salicaria* | 25 | Y | OBL |
| 3 *typha angustifolia* | 15 | N | OBL |
| 4 *alisma triviale* | 5 | N | OBL |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 95 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 45 | x 1 = | 45 |
| FACW species | 150 | x 2 = | 300 |
| FAC species | 22 | x 3 = | 66 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 217 (A) | | 411 (B) |

Prevalence Index = B/A = 1.89

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 7

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 1 | 10YR 3/1 | 100 | | | | | Loamy Sand | |
| 1 - 3 | 2.5Y 4/2 | 98 | 10YR 6/8 | 2 | RM | M | Loamy Sand | |
| 3 - 4 | 10YR 3/1 | 98 | 10YR 6/8 | 2 | RM | M | Loamy Sand | |
| 4 - 22+ | 10YR 3/1 | 100 | | | | | Loamy Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- X Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Watseka loamy fine sand

Visile iron depletions below stipped layer (>3" deep)

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/17/15

Applicant/Owner: | State: IN | Sampling Point: Upland 7

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka loamy fine sand | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |
| **Is the sampled area within a wetland?** | N |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 *populus deltoides* | 10 | Y | FAC |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 10 | = Total Cover | |
| **Sapling/Shrub stratum** (Plot size: ) | | | |
| 1 *salix interior* | 50 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 50 | = Total Cover | |
| **Herb stratum** (Plot size: ) | | | |
| 1 *phragmites australis* | 10 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 10 | = Total Cover | |
| **Woody vine stratum** (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 60 | x 2 = | 120 |
| FAC species | 10 | x 3 = | 30 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 70 (A) | | 150 (B) |

Prevalence Index = B/A = 2.14

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 7

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 - 10 | 10YR 4/1 | 100 | | | | | Loamy Sand | No observed redo features |
| 10 - 25+ | 2.5Y 2.5/1 | 100 | | | | | Loamy Sand | No observed redo features |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

Watseka loamy fine sand

No hydric indicators

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes ___ | No | X | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes ___ | No | X | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No observed hydrology

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/17/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 10

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka loamy fine sand | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | Y |
| Hydric soil present? | Y |
| Indicators of wetland hydrology present? | Y |
| **Is the sampled area within a wetland?** | Y |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *fraxinus pennsylvanica* | 30 | Y | FACW |
| 2 *populus deltoides* | 20 | Y | FAC |
| 3 *salix interior* | 10 | N | FACW |
| 4 | | | |
| 5 | | | |
| | 60 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *fraxinus pennsylvanica* | 10 | Y | FACW |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 10 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *lythrum salicaria* | 70 | Y | OBL |
| 2 *symphyotrichum lanceolatum* | 10 | N | FAC |
| 3 *bidens cernua* | 5 | N | OBL |
| 4 *cyperus esculentus* | 5 | N | FACW |
| 5 *persicaria lapathifolia* | 5 | N | FACW |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 95 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 *vitis riparia* | 2 | | FACW |
| 2 | | | |
| | 2 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 75 | x 1 = | 75 |
| FACW species | 62 | x 2 = | 124 |
| FAC species | 30 | x 3 = | 90 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 167 (A) | | 289 (B) |

Prevalence Index = B/A = 1.73

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 10

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 6 | 10YR 2/1 | 100 | | | | | Loamy Sand | |
| 6 - 7 | 2.5Y 4/3 | 100 | | | | | Loamy Sand | |
| 7 - 15 | 2.5Y 6/6 | 10 | | | | | Sand | |
| 15 - 19+ | 5Y 2.5/1 | 85 | 7.5YR 6/8 | 10 | RM | M | Loamy Sand | |
| | | | 7.5YR 3/4 | 5 | RM | M | Loamy Sand | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- X Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Watseka loamy fine sand

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/28/15

Applicant/Owner: | State: IN | Sampling Point: Upland 10

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Watseka loamy fine sand | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | **Is the sampled area within a wetland?** | N |
| Hydric soil present? | N | If yes, optional wetland site ID: | |
| Indicators of wetland hydrology present? | N | | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Sapling/Shrub stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 | = Total Cover | |

| Herb stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 *poa pratensis* | 100 | Y | FAC |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 100 | = Total Cover | |

| Woody vine stratum (Plot size: ) | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 100 | x 3 = | 300 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column totals | 100 (A) | | 300 (B) |

Prevalence Index = B/A = 3.00

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Upland 10

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 5 | 2.5Y 2.5/1 | 100 | | | | | N/A | |
| 5 - 15 | 2.5Y 2.5/1 | 100 | | | | | N/A | RESEMBLES CRUSHED COAL |
| 15 - 22+ | 2.5Y 6/6 | 90 | | | | | N/A | |
| | 2.5Y 2.5/1 | 3 | | | | | N/A | |
| | 2.5Y 5/6 | 7 | | | | | N/A | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

Watseka loamy fine sand

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes ___ | No | X | Depth (inches): | ___ |
| Water table present? | Yes ___ | No | X | Depth (inches): | ___ |
| Saturation present? (includes capillary fringe) | Yes ___ | No | X | Depth (inches): | ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

NO INDICATORS

# WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/16/15

Applicant/Owner: | State: IN | Sampling Point: Wetland 9

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances"

Are vegetation , soil , or hydrology naturally problematic? present?

## SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | | |
|---|---|---|---|
| Hydrophytic vegetation present? | Y | | |
| Hydric soil present? | Y | **Is the sampled area within a wetland?** | Y |
| Indicators of wetland hydrology present? | Y | If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

## VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 0 = Total Cover | | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 *sambucus nigra* | 50 | Y | FACW |
| 2 *frangula alnus* | 25 | Y | FACW |
| 3 *pyrus communis* | 5 | N | |
| 4 | | | |
| 5 | | | |
| | 80 = Total Cover | | |
| Herb stratum (Plot size: ) | | | |
| 1 *lythrum salicaria* | 80 | Y | OBL |
| 2 *epilobium coloratum* | 15 | N | OBL |
| 3 *persicaria amphibia* | 10 | N | OBL |
| 4 *geum laciniatum* | 10 | N | FACW |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 115 = Total Cover | | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 = Total Cover | | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

**Prevalence Index Worksheet**

| Total % Cover of: | | | | |
|---|---|---|---|---|
| OBL species | 105 | x 1 = | 105 | |
| FACW species | 85 | x 2 = | 170 | |
| FAC species | 0 | x 3 = | 0 | |
| FACU species | 0 | x 4 = | 0 | |
| UPL species | 0 | x 5 = | 0 | |
| Column totals | 190 | (A) | 275 | (B) |

Prevalence Index = B/A = 1.45

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** Y

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

**SOIL**

**Sampling Point:** Wetland 9

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 24+ | 2.5Y 3/1 | 96 | 2.5Y4/4 | 4 | RM | M | Clay Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** Y

Remarks:

Bono silty clay loam

Hydric Indicator: Yes

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: NICTD West Lake Corridor | City/County: Lake County | Sampling Date: 9/16/15

Applicant/Owner: | State: IN | Sampling Point: Upland 9

Investigator(s): Anna Hochhalter and Scott Beckmeyer | Section, Township, Range:

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none):

Slope (%): | Lat: | Long: | Datum:

Soil Map Unit Name: Bono silty clay loam | NWI Classification: none

Are climatic/hydrologic conditions of the site typical for this time of the year? (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic?

### SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | |
|---|---|
| Hydrophytic vegetation present? | N |
| Hydric soil present? | N |
| Indicators of wetland hydrology present? | N |
| **Is the sampled area within a wetland?** | N |
| If yes, optional wetland site ID: | |

Remarks: (Explain alternative procedures here or in a separate report.)

### VEGETATION -- Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Staus |
|---|---|---|---|
| Tree Stratum (Plot size: ) | | | |
| 1 *Acer saccharinum* | 5 | Y | FACW |
| 2 *ulmus pumila* | 5 | Y | UPL |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 10 | = Total Cover | |
| Sapling/Shrub stratum (Plot size: ) | | | |
| 1 | 8 | Y | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| | 8 | = Total Cover | |
| Herb stratum (Plot size: ) | | | |
| 1 *agrostis hyemalis* | 40 | Y | FAC |
| 2 *Rubus occidentalis* | 40 | Y | |
| 3 *cirsium arvense* | 40 | Y | FACU |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| | 120 | = Total Cover | |
| Woody vine stratum (Plot size: ) | | | |
| 1 | | | |
| 2 | | | |
| | 0 | = Total Cover | |

**Dominance Test Worksheet**

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

**Prevalence Index Worksheet**

Total % Cover of:

| | | | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 5 | x 2 = | 10 |
| FAC species | 40 | x 3 = | 120 |
| FACU species | 40 | x 4 = | 160 |
| UPL species | 5 | x 5 = | 25 |
| Column totals | 90 (A) | | 315 (B) |

Prevalence Index = B/A = 3.50

**Hydrophytic Vegetation Indicators:**

- Rapid test for hydrophytic vegetation
- Dominance test is >50%
- Prevalence index is ≤3.0*
- Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

**Hydrophytic vegetation present?** N

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

## SOIL

**Sampling Point:** Upland 9

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

| Depth (Inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type* | Loc** | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 - 13 | 2.5Y 3/2 | 100 | | | | | Silty Clay Loam | |
| 13 - 24+ | 2.5Y 4/1 | 80 | 10YR 4/6 | 15 | RM | M | Silty Clay Loam | |
| | | | 7/10 Y | 5 | RM | M | Silty Clay Loam | Gley |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric soil present?** N

Remarks:

No signs of iron in the top 12" of soil

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
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- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface water present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water table present? | Yes | ___ | No | X | Depth (inches): ___ |
| Saturation present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): ___ |

**Indicators of wetland hydrology present?** N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No visible signs of hydrology