

Categorical Exclusion
Appendix F
Water Resources

Waters of the U.S. Determination / Wetland Delineation Report
236th St. Road Rehabilitation Project
Hamilton County, Indiana
DES# 1400760

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September 30, 2016

Introduction

RQAW Corporation conducted a *Waters of the United States* determination on 3/11/2016 and 8/26/2016 for 236th St. Road Rehabilitation Project in Hamilton County, Indiana. The proposed project would involve widening the existing roadway and replacement of three drainage structures. The project is located on 236th St., from US 31 to 2.1 miles west of UN 31, Hamilton County. It is within Adams Township, Sheridan Quadrangles, Townships 19 and 20 North, Range 3 East and Sections 1, 2, 3, 34, 35, and 36. Adjacent land use in the area is residential and agricultural.

In its entirety, 236th Street runs in a west to east direction from Sheridan to Cicero. The roadway consists of one 11-foot travel lane and one 2-foot shoulder in each direction. The project will create 15-foot travel lanes and 4-foot useable (3-foot paved) shoulders in each direction. The widened travel lane will allow for 236th Street to be signed as a designated bike route. In order to limit impacts within the Bakers Corner, 12-foot travel lanes and curb with 2-foot curb offset will be provided. A storm sewer will also be constructed there. New ditches will be constructed where there is a suitable outlet; however, it is anticipated that the existing drainage pattern will be maintained in several areas because there are limited locations to outlet concentrated drainage within the corridor. The 236th Street/US 31 Intersection will only be milled and resurfaced due construction of the future interchange.

Pages 3 and 4 show the summary of the Waters Determination; pages 5 through 20 contain maps of the project location; pages 21 through 42 have photographs of the waterway and surrounding area; Pages 43 through 48 have the wetland data forms; pages 49 through 52 have the qualitative habitat evaluation index (QHEI) and headwater habitat evaluation (HHEI) forms; pages 53 through 56 include the Jurisdictional Determination Form.

NWI Wetlands

One (1) National Wetlands Inventory (NWI) mapped wetland is mapped adjacent to the project area. This mapped wetland is classified as a (1) palustrine aquatic bottom (PAB) or freshwater pond.

Soils

According to the Soil Survey Geographic (SSURGO) Database of Hamilton County, four hydric soils (Brookston silty clay loam (Br), Palms Much (Pa), Sloan silty clay loam (Sx), and Patton silty clay loam (Pn)) are mapped within the project area.

Brookston silty clay loam (Br), 0 to 2 percent slopes, is a poorly drained hydric soil.

Crosby silt loam (CrA), fine loamy subsoil, 0 to 2 percent slopes, is a somewhat poorly drained non-hydric soil.

Miami clay loam (MoC3), 6 to 12 percent slopes, eroded, is a moderately well drained non-hydric soil.

Miami silt loam (MmB2), 2 to 6 percent slopes, eroded, is a moderately well drained non-hydric soil.

Palms muck (Pa), is a very poorly drained hydric soil.

Sloan silty clay loam (Sx), sandy substratum, is a very poorly drained hydric soil.

Field Reconnaissance

Streams

The field reconnaissance revealed four (4) streams within the project area. Of these four streams, three are considered legal drains of which two are encapsulated within the project area. UNT 1 is an encapsulated legal drain known as William Baker Drain and flows in a north to south direction under 236th Street and empties into Hinkle Creek to the south. The pipe that carries UNT 1 has failed under the bridge on 236th St. and is open water under the bridge. The water enters the pipe again before exiting the bridge. The stream was not evaluated on quality due to the stream being encapsulated. This stream opens up to an open channel south of the project area and exhibits an Ordinary High Water Mark (OHWM). Based on these criteria, this stream is likely to be considered a Waters of the United States.

UNT 2 is an encapsulated legal drain that flows west to east along the south side of 236th St. This stream is known as the CB Jones Arm of the William Baker Drain. This stream connects to UNT 1 underground and does not exhibit an OHWM or defined bed or bank, however, this stream is considered to be jurisdictional due to its mapping on the Hamilton County Legal Drain system and connectivity to UNT 1. Based on these criteria, this stream is likely to be considered a Waters of the United States.

UNT 3 flows in a south to north direction to the confluence with Jay Ditch or Teter Branch Legal Drain. This stream begins at the outfall of the structure under 236th St. and flows north for approximately 60 feet before entering Jay Ditch. The HHEI score for the UNT 3 was 48. This stream exhibited Ordinary High Water Mark (OHWM) characteristics of 4.1 feet in width and 4 inches in depth. Based on these criteria, this stream is likely to be considered a Waters of the United States.

Jay Ditch or Teter Branch Legal Drain flows in a south to north direction then turns east along the north side of 236th St. then continues north until its confluence with Little Cicero Creek. The QHEI score for Jay Ditch was 53. This stream exhibited Ordinary High Water Mark (OHWM) characteristics of 16 feet in width and 26 inches in depth. Based on these criteria, this stream is likely to be considered a Waters of the United States.

Roadside Ditches

No roadside ditches (RSD) were identified within the project area. The roadside drainage drains off onto the surrounding landscape.

Wetlands

One (1) palustrine emergent wetland (Wetland A) was identified within project area. Below is a summary of Wetland A and corresponding data points.

Wetland A is located north of 236th St. and is adjacent to a constructed berm. This wetland has developed due to the constructed berm and water control structure. According to historical aerial photography this berm was constructed around 2006 and the wetland developed shortly thereafter. This wetland is considered a *Waters of the United States* due to its connectivity to an UNT 1 by water out letting through the water control structure into UNT 1. Two data points (A1 and A2) were taken to identify the boundary of Wetland A.

A1 was taken within Wetland A and met all three criteria to be within a wetland. This data point exhibited 100 percent hydrophytic vegetation and soils were redox dark surface (F6) which met the hydric soils criterion. This data point exhibited four primary (surface water, high water table, saturation, and inundation visible on aerial imagery) and two secondary (crayfish burrows, and FAC-neutral test) wetland hydrology indicators.

A2 was taken approximately 20 feet south of data point A1 within the adjacent upland area along the road fill slope. This data point did not meet any of the three criteria to be considered within a wetland. This data point was taken approximately one foot above the boundary of Wetland A along the roadside fill slope of 236th St.

Upland Data Point

UP 1 was taken approximately 30 feet north of data point 236th St. within the maintained area that contains the encapsulated UNT 1. This data point was taken approximately 80 feet east of the constructed berm. This data point did not meet any of the three criteria to be considered within a wetland.

Conclusions

A field reconnaissance was conducted to evaluate the presence of *Waters of the United States* for the proposed 236th St. Road Rehabilitation Project in Hamilton County, Indiana. Field observations identified one (1) palustrine emergent wetland and four (4) tributaries within the project limits.

Field observations did not identify and roadside ditches within the project area.

The final determination of jurisdictional waters is ultimately made by the U.S. Army Corps of Engineers (USACE) and this report is our best judgment based on the guidelines set forth by the USACE.

**Table 1: Stream Summary
236th St. Road Rehabilitation Project
DES# 1400760
Hamilton County, Indiana**

Stream Name	Photos	Lat/Long	OHWB Width (feet)	OHWB Depth (feet)	USGS Blue-line?	Riffles /Pools ?	Quality QHEI/HHEI Score(s)	Likely Water of U.S.?
UNT 1 (William Baker Drain)	26, 30-35	40.1306 N -86.1312 W	N/A	N/A	No	No	N/A	Yes
UNT 2 (CB Jones Arm of William Baker Drain)	N/A	40.1309 N -86.1376 W	N/A	N/A	No	No	N/A	Yes
UNT 3 to Jay Ditch	8-14	40.1307 N -86.1684 W	4.1	0.3	No	Yes	48/Class II	Yes
Jay Ditch (Teter Branch Legal Drain)	1-7	40.1306 N -86.1696 W	16	2.16	Yes	Yes	53/Fair	Yes

**Table 2: Wetland Summary
236th St. Road Rehabilitation Project
DES# 1400760**

Hamilton County, Indiana

Wetland Name	Photos	Lat/Long	Type	Total Area (acres)	Likely Water of U.S.?
Wetland A	15-19, 44	40.1313 N -86.1341 W	Palustrine Emergent	>0.13	Yes

Maps and photographs were omitted to avoid duplication. See maps in Appendix B of this CE.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 236th Street Widening Project City/County: Hamilton Sampling Date: 3/11/16
 Applicant/Owner: Hamilton County State: IN Sampling Point: A1
 Investigator(s): JDD Section, Township, Range: 36/20N/3E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 3 Lat: 40.1312 Long: -86.1340 Datum: NAD 83
 Soil Map Unit Name: Palms Muck (Pa) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	
Remarks: This data point exhibited all three criterion to be considered within a wetland. This wetland is within an area that has been bermed up and a water control structure put in place to control water levels. This area is disturbed and the adjacent stream (Legal Drain) has been encapsulated and piped in the project area.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>75</u></td> <td>x 1 = <u>75</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>80</u> (A)</td> <td><u>85</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.0</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>75</u>	x 1 = <u>75</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: <u>80</u> (A)	<u>85</u> (B)	Prevalence Index = B/A = <u>1.0</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>75</u>	x 1 = <u>75</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: <u>80</u> (A)	<u>85</u> (B)																			
Prevalence Index = B/A = <u>1.0</u>																				
Sapling/Shrub Stratum (Plot size: _____) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Herb Stratum (Plot size: 1m2) 1. <u>Typha angustifolia</u> 75 Yes OBL 2. <u>Solidago gigantea</u> 5 No FACW 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover																				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.) This data point exhibited a dominance of hydrophytic vegetation.																				

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 236th Street Widening Project City/County: Hamilton Sampling Date: 3/11/16
 Applicant/Owner: Hamilton County State: IN Sampling Point: A2
 Investigator(s): JDD Section, Township, Range: 36/20N/3E
 Landform (hillslope, terrace, etc.): Fill slope Local relief (concave, convex, none): Concave
 Slope (%): 8 Lat: 40.1311 Long: -86.1340 Datum: NAD 83
 Soil Map Unit Name: Palms Muck (Pa) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: This data point did not exhibit any of the three criterion to be considered within a wetland. This data point was taken along the fill slope of the roadway.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>20</u> x 2 = <u>40</u> FAC species _____ x 3 = _____ FACU species <u>80</u> x 4 = <u>320</u> UPL species _____ x 5 = _____ Column Totals: <u>100</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>3.6</u>
5. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>1m2</u>)				
1. <u>Schendonorus pratensis</u>	<u>80</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.) This data point did not exhibit a dominance of hydrophytic vegetation.				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 236th Street Widening Project City/County: Hamilton Sampling Date: 3/11/16
 Applicant/Owner: Hamilton County State: IN Sampling Point: UP1
 Investigator(s): JDD Section, Township, Range: 36/20N/3E
 Landform (hillslope, terrace, etc.): Waterway Local relief (concave, convex, none): Concave
 Slope (%): 4 Lat: 40.1312 Long: -86.1336 Datum: NAD 83
 Soil Map Unit Name: Palms Muck (Pa) NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: This data point met one of the three criterion to be considered within a wetland. This data point was taken within a legal drain easement of which the stream has been encapsulated and filled. The easement is mowed and disturbed through grading and filling of the area. The constructed berm does not allow water to enter the site and thus the site is drained through the piped stream.		

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		Dominance Test worksheet:
1. _____	_____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	_____	
5. _____	_____	_____	_____	_____	
_____ = Total Cover					
<u>Sapling/Shrub Stratum</u> (Plot size: _____)					Prevalence Index worksheet:
1. _____	_____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	_____	FACW species <u>30</u> x 2 = <u>60</u>
4. _____	_____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	_____	FACU species <u>65</u> x 4 = <u>260</u>
_____ = Total Cover					UPL species _____ x 5 = _____
					Column Totals: <u>95</u> (A) <u>320</u> (B)
					Prevalence Index = B/A = <u>3.4</u>
<u>Herb Stratum</u> (Plot size: <u>1m2</u>)					Hydrophytic Vegetation Indicators:
1. <u>Schendonorus pratensis</u>	<u>65</u>	<u>Yes</u>	<u>FACU</u>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>		<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____		<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____	_____	_____	_____		<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
_____ = Total Cover					
<u>Woody Vine Stratum</u> (Plot size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____ = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)
 This data point did not exhibit a dominance of hydrophytic vegetation. Vegetation is mowed and maintained.



OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
1	1	Jay Ditch (Teter Branch Legal Drain)	236th Street
Surveyor	Sample Date	County	Macro SampleType
JDD	3/11/16	Hamilton	
Habitat Complete			QHEI Score: 53

1-Substrate (20 points maximum)

Substrate Score: 14

Check 1 Predominant Pool & 1 Predominant Riffle

Check all that are present

Predominant		Present		Predominant		Present	
P	R	P	R	P	R	P	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Substrate Quality (check only 1, or check 2 and AVERAGE)

Substrate Origin		
<input type="checkbox"/> Limestone(1)	<input type="checkbox"/> Hardpan(0)	<input type="checkbox"/> Lacustrine(0)
<input checked="" type="checkbox"/> Tills(1)	<input type="checkbox"/> Sandstone(0)	<input type="checkbox"/> Shale(-1)
<input type="checkbox"/> Wetlands(0)	<input type="checkbox"/> Rip/Rap(0)	<input type="checkbox"/> Coal fines(-2)
Silt Cover		Embeddedness
<input type="checkbox"/> Silt heavy(-2)	<input type="checkbox"/> Silt moderate(-1)	<input type="checkbox"/> Extensive(-2)
<input checked="" type="checkbox"/> Silt normal(0)	<input type="checkbox"/> Silt free(1)	<input type="checkbox"/> Moderate(-1)
		<input checked="" type="checkbox"/> Low/Normal(0)
		<input type="checkbox"/> None(1)

NOTE: ignore sludge originating from point sources; score based on natural substrates

>4 substrates present(2)

Comments:

2-Instream Cover (20 points maximum)

Instream Cover Score: 6

Type (check ALL that apply)

<input type="checkbox"/> Undercut banks(1)	<input checked="" type="checkbox"/> Deep pools(2)	<input type="checkbox"/> Oxbows(1)
<input type="checkbox"/> Overhanging vegetation(1)	<input type="checkbox"/> Rootwads(1)	<input type="checkbox"/> Aquatic macrophytes(1)
<input type="checkbox"/> Shallows(in slow water)(1)	<input type="checkbox"/> Boulders(1)	<input checked="" type="checkbox"/> Logs and woody debris(1)
<input type="checkbox"/> Rootmats(1)	Comments:	

Amount (check only 1, or 2 and AVERAGE)

<input type="checkbox"/> Extensive >75% (11)
<input type="checkbox"/> Moderate 25-75% (7)
<input checked="" type="checkbox"/> Sparse 5-25% (3)
<input type="checkbox"/> Nearly absent <5% (1)

3-Channel Morphology (20) (check only one per category, OR two and AVERAGE)

Channel Score: 9

Sinuosity	Development	Channelization	Stability	Modifications/Other	
<input type="checkbox"/> High (4)	<input type="checkbox"/> Excellent (7)	<input type="checkbox"/> None (6)	<input type="checkbox"/> High (3)	<input type="checkbox"/> Snagging	<input type="checkbox"/> Impound
<input type="checkbox"/> Moderate (3)	<input type="checkbox"/> Good (5)	<input type="checkbox"/> Recovered (4)	<input type="checkbox"/> Moderate (2)	<input checked="" type="checkbox"/> Relocation	<input type="checkbox"/> Islands
<input checked="" type="checkbox"/> Low (2)	<input checked="" type="checkbox"/> Fair (3)	<input checked="" type="checkbox"/> Recovering (3)	<input checked="" type="checkbox"/> Low (1)	<input checked="" type="checkbox"/> Canopy Removal	<input type="checkbox"/> Leveed
<input type="checkbox"/> None (1)	<input type="checkbox"/> Poor (1)	<input type="checkbox"/> Recent or no recovery (1)		<input type="checkbox"/> Dredging	<input checked="" type="checkbox"/> Bank shaping
Comments:				<input type="checkbox"/> One side channel modifications	

4-Riparian Zone & Bank Erosion (10 points maximum)

Riparian Score: 3

Left/Right banks looking downstream (For each category, check only one per bank, OR two per bank and AVERAGE).

Riparian width	Erosion/Runoff-Floodplain quality (past 100 ft Riparian)		Bank Erosion
L R (per bank)	L R (most predominant per bank)	L R	L R (per bank)
<input type="checkbox"/> Wide >50m (4)	<input type="checkbox"/> Forest, Swamp (3)	<input type="checkbox"/> Conservation Tillage (1)	<input type="checkbox"/> None or little (3)
<input type="checkbox"/> Moderate 10-50m (3)	<input type="checkbox"/> Shrub or Old field (2)	<input type="checkbox"/> Urban or Industrial (0)	<input checked="" type="checkbox"/> Moderate (2)
<input type="checkbox"/> Narrow 5-10m (2)	<input type="checkbox"/> Residential, Park, New field (1)	<input type="checkbox"/> Mining, Construction (0)	<input type="checkbox"/> Heavy/Severe (1)
<input checked="" type="checkbox"/> Very narrow <5m (1)	<input type="checkbox"/> Fenced pasture (1)	<input checked="" type="checkbox"/> Open Pasture/Rowcrop (0)	
<input type="checkbox"/> None (0)	Comments:		

5a-Pool/Glide Quality (12 points maximum)

Pool/Glide Score: 9

Max pool depth (check one)	Morphology (check only one, OR check two and AVERAGE)	Pool/Run/Riffle current velocity (check all that apply)
<input checked="" type="checkbox"/> >1m (6)	<input checked="" type="checkbox"/> Pool width > riffle width (2)	<input type="checkbox"/> Eddies (1)
<input type="checkbox"/> 0.7-1m (4)	<input type="checkbox"/> Pool width = riffle width (1)	<input type="checkbox"/> Fast (1)
<input type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> Pool width < riffle width (0)	<input type="checkbox"/> Moderate (1)
<input type="checkbox"/> 0.2-0.4m (1)		<input checked="" type="checkbox"/> Slow (1)
<input type="checkbox"/> <0.2m (pool=0)	Comments:	<input type="checkbox"/> Torrential (-1)
		<input type="checkbox"/> Interstitial (-1)
		<input type="checkbox"/> Intermittent (-2)
		<input type="checkbox"/> No pool (0)

5b-Riffle/Run Quality (8) (check only one per category, OR two and AVERAGE)

Riffle/Run Score: 4

Riffle/run depth (check one)	Riffle/run substrate	Riffle/run embeddedness
<input type="checkbox"/> Generally >10cm, Max >50cm (4)	<input type="checkbox"/> Stable-e.g. cobble, boulder (2)	<input type="checkbox"/> Extensive (-1)
<input checked="" type="checkbox"/> Generally >10cm, Max <50cm (3)	<input type="checkbox"/> Mod. stable-e.g. pea gravel (1)	<input checked="" type="checkbox"/> Normal/Low (1)
<input type="checkbox"/> Generally 5-10cm (1)	<input checked="" type="checkbox"/> Unstable-e.g. sand, gravel (0)	<input type="checkbox"/> Moderate (0)
<input type="checkbox"/> Generally <5cm (riffle=0)	Comments:	<input type="checkbox"/> None (2)
		<input type="checkbox"/> No riffle (0)

6-Gradient (10 points maximum)

Gradient Score: 8

Average width: 16' Gradient: 8 (ft/mile) Drainage Area: 3.38 (square miles)

Comments: OHWM Depth 26"



OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

Sample #	bioSample #	Stream Name	Location
1	1	Jay Ditch (Teter Branch Legal Drain)	236th Street
Surveyor	Sample Date	County	Macro SampleType
JDD	3/11/16	Hamilton	
			<input type="checkbox"/> Habitat Complete
			QHEI Score: 53

Impacts/Miscellaneous

Major Suspected Impacts (Check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Suburban |
| <input type="checkbox"/> Industrial | <input checked="" type="checkbox"/> Channelization |
| <input type="checkbox"/> WWTP | <input checked="" type="checkbox"/> Riparian Removal |
| <input checked="" type="checkbox"/> Agricultural | <input type="checkbox"/> Flow Alteration |
| <input type="checkbox"/> Livestock | <input type="checkbox"/> CSOs |
| <input type="checkbox"/> Silviculture | <input type="checkbox"/> Mining |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Landfills |
| <input type="checkbox"/> Urban Runoff | <input type="checkbox"/> Natural |

Pollution Impact Comments:

Miscellaneous QHEI Information

Subjective rating (1-10):	<input type="text" value="5"/>	% Riffle:	<input type="text" value="15"/>	Is reach representative of stream? <input type="text" value="Yes"/>
Aesthetic rating (1-10):	<input type="text" value="5"/>	% Run:	<input type="text" value="15"/>	
Canopy Cover (% Open):	<input type="text" value="80"/>	% Glide:	<input type="text" value="10"/>	
		% Pool:	<input type="text" value="60"/>	

General QHEI Notes:



Primary Headwater Habitat Evaluation Form

48

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION UNT 3 to Jay Ditch

SITE NUMBER 1 RIVER BASIN _____ DRAINAGE AREA (mi²) 0.01

LENGTH OF STREAM REACH (ft) 60 LAT. 40.13070 LONG. -86.16830 RIVER CODE _____ RIVER MILE _____

DATE 03/11/16 SCORER JDD COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

1. **SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

HHEI Metric Points

Substrate Max = 40

18

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

15

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 30%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	<input checked="" type="checkbox"/> 60%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A)

Substrate Percentage Check 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15

TOTAL NUMBER OF SUBSTRATE TYPES: 3

2. **Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 8

3. **BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): 1.30

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)		Conservation Tillage	
Wide >10m		Mature Forest, Wetland		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Open Pasture, Row Crop	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Mining or Construction	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
None		Fenced Pasture			

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

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

QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

<input type="checkbox"/> WWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
 County: Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:
 Photograph Information:
 Elevated Turbidity? (Y/N): Canopy (% open):
 Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
 Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
 Is the sampling reach representative of the stream (Y/N) If not, please explain:

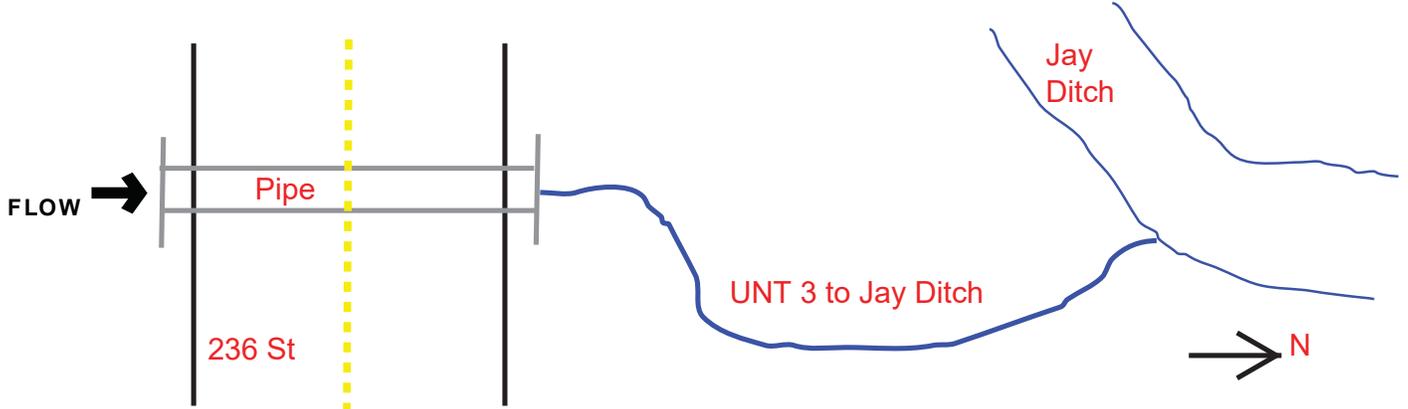
 Additional comments/description of pollution impacts:

BIOTIC EVALUATION

Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
 Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
 Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
 Comments Regarding Biology:

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Joe Dabkowski, RQAW Corporation 10401 North Meridian St, Suite 401,
Indianapolis, IN 46290

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: 236th
Street Rehabilitation Project (DES# 1400760)
**(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES
AT DIFFERENT SITES)**

State:IN County/parish/borough: Hamilton City: Sheridan
Center coordinates of site (lat/long in degree decimal format): Lat. 40.1308°
N, Long. -86.1479° **W**.

Universal Transverse Mercator: NAD 83
Name of nearest waterbody: Jay Ditch

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 3360 linear feet: 4-16 width (ft) and/or acres.
Cowardin Class: Riverine
Stream Flow: Intermittent Perennial
Wetlands: >0.13 acres.
Cowardin Class: Emergent

Name of any water bodies on the site that have been identified as Section 10
waters:

Tidal:

Non-Tidal:

**E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT
APPLY):**

Office (Desk) Determination. Date: 3/17/2016

Field Determination. Date(s): 3/11/2016

1. The Corps of Engineers believes that there may be jurisdictional waters of the
United States on the subject site, and the permit applicant or other affected party
who requested this preliminary JD is hereby advised of his or her option to

request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring “pre-construction notification” (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant’s acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there “*may be*” waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:1:24,000/Sheridan Quad.
- USDA Natural Resources Conservation Service Soil Survey. Citation:Hamilton County.
- National wetlands inventory map(s). Cite name:Hamilton County/USFWS data.
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: .
- 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):Hamilton County/2014. or Other (Name & Date):Photographs taken 3/11/16.
- Previous determination(s). File no. and date of response letter: .
- Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

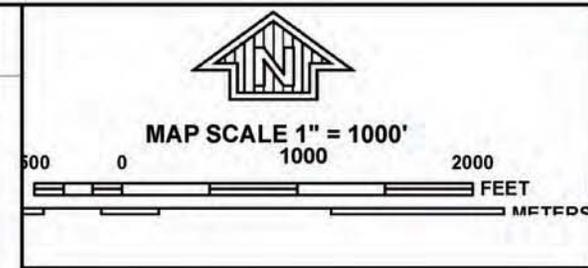
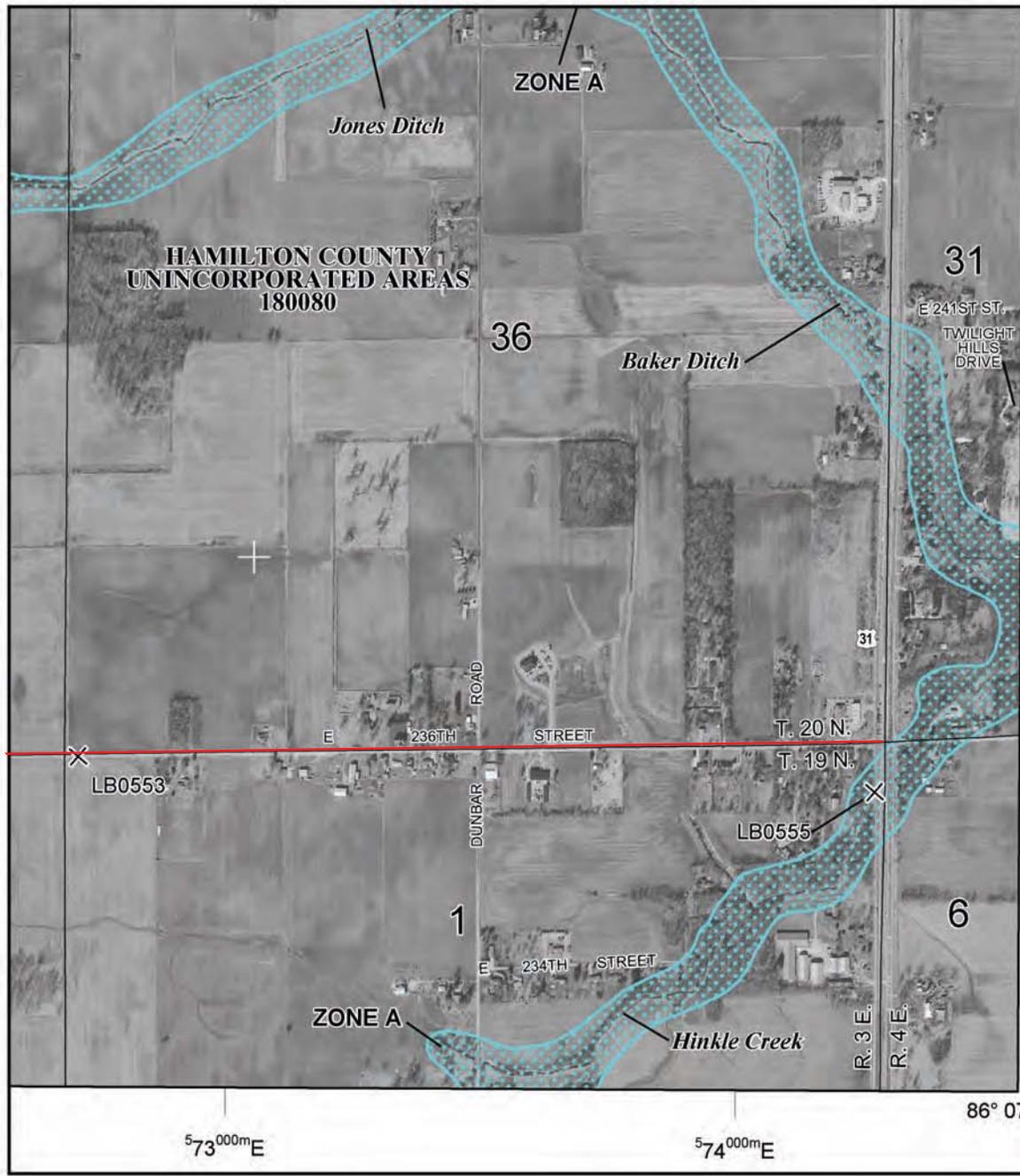


Signature and date of
Regulatory Project Manager
(REQUIRED)

Joseph Dankowski 3/18/16

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Jay Ditch	40.1306 N	-86.1696 W	Riverine	400 linear feet	non-section 10 – non-wetland
UNT 1 (William Baker Drain)	40.1312 N	-86.1312 W	Riverine	300 linear feet	non-section 10 – non-wetland
UNT 2 (CB Jones Arm of William Baker Drain)	40.1309 N	-86.1376 W	Riverine	2600 linear feet	non-section 10 – non-wetland
UNT 3 to Jay Ditch	40.1307 N	-86.1684 W	Riverine	60 linear feet	non-section 10 – non-wetland
Wetland A	40.1313 N	-86.1341 W	Emergent	>0.13 acre	non-section 10 – wetland



NFP

PANEL 0020G

FIRM
FLOOD INSURANCE RATE MAP
HAMILTON COUNTY,
INDIANA
AND INCORPORATED AREAS

PANEL 20 OF 300
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HAMILTON COUNTY	180080	0020	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
18057C0020G
MAP REVISED
NOVEMBER 19, 2014

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



UNTY
D AREAS

Jay Ditch

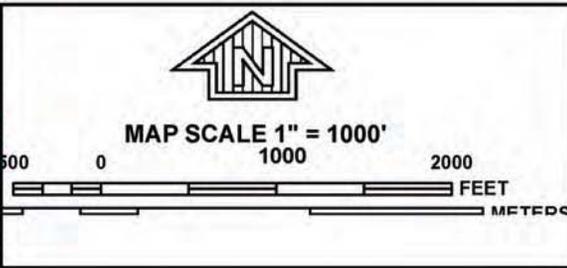
35

W 236TH STREET

SPRING
MILL
ROAD

2

ch



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0020G

FIRM
FLOOD INSURANCE RATE MAP
HAMILTON COUNTY,
INDIANA
AND INCORPORATED AREAS

PANEL 20 OF 300
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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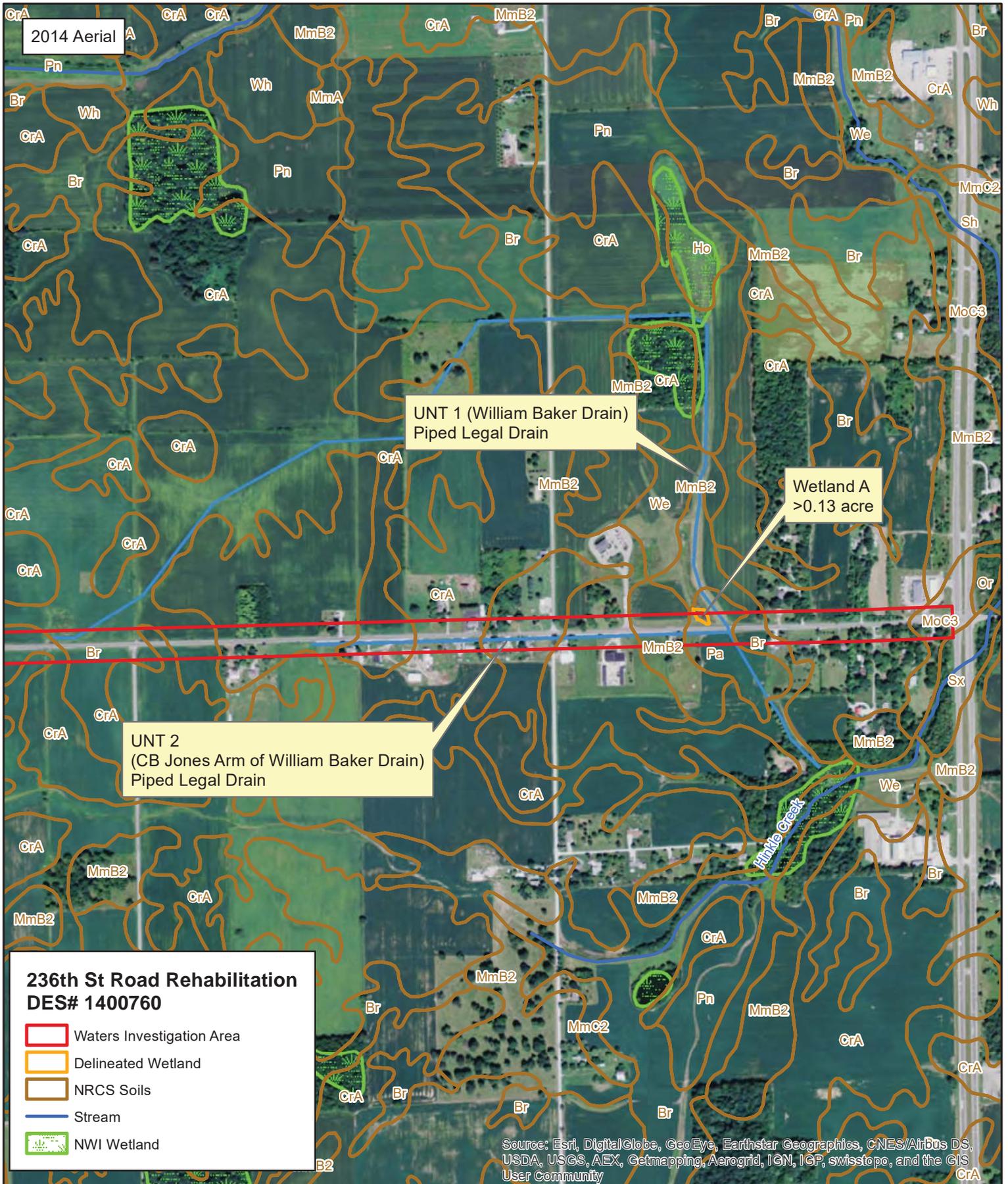


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JOINS PANEL 0110
571,000m E 572,000m E



2014 Aerial

UNT 1 (William Baker Drain)
Piped Legal Drain

Wetland A
>0.13 acre

UNT 2
(CB Jones Arm of William Baker Drain)
Piped Legal Drain

**236th St Road Rehabilitation
DES# 1400760**

- Waters Investigation Area
- Delineated Wetland
- NRCS Soils
- Stream
- NWI Wetland

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

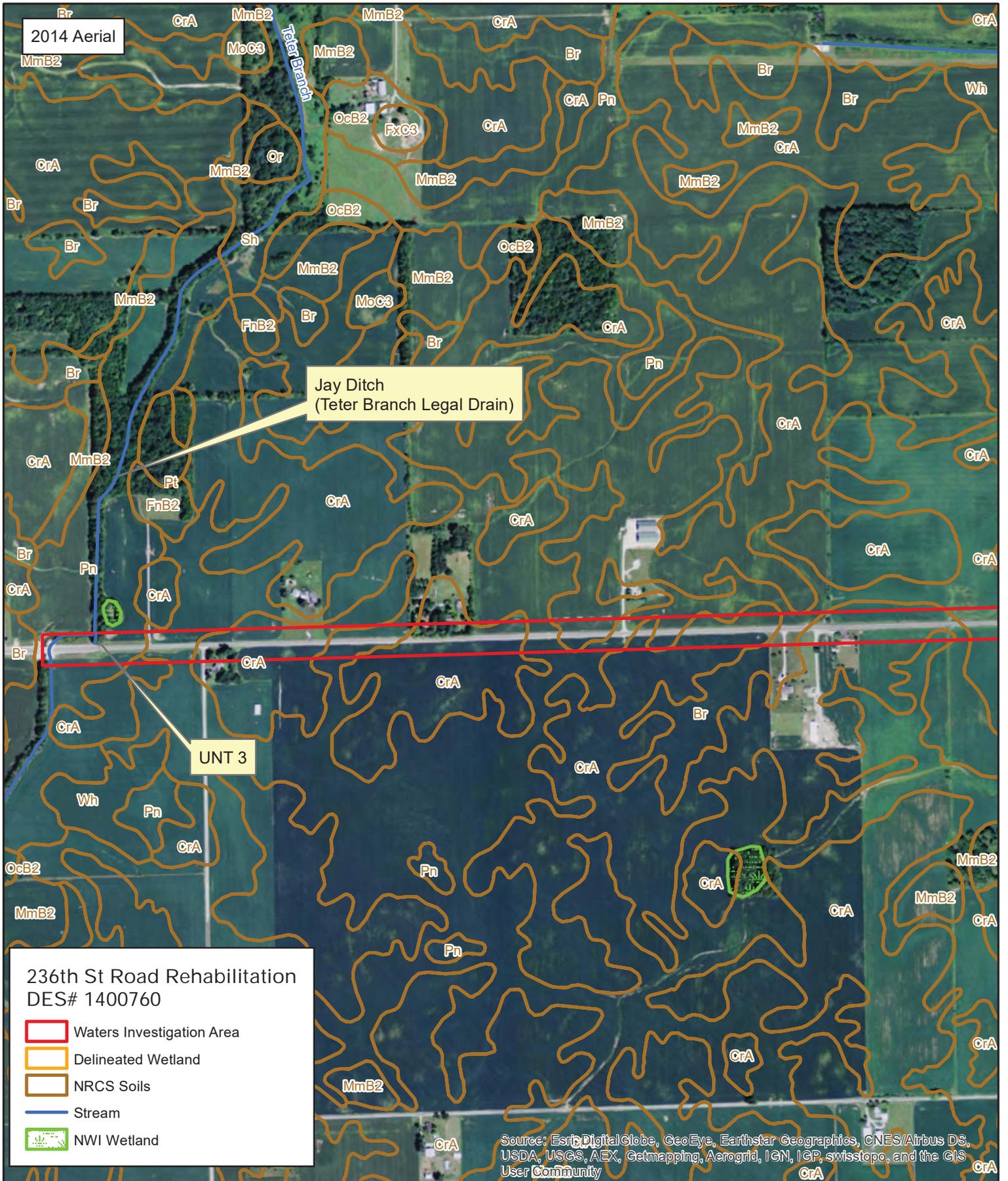
RQAW
CONSULTING ENGINEERS & ARCHITECTS
10401 North Meridian Street; Suite 401
Indianapolis, IN 46290

Waters of the US

0 500 1,000 2,000 Feet

Location: Sheridan
Township: Adams
County: Hamilton

N
↑
3/17/2016



2014 Aerial

Jay Ditch
(Teter Branch Legal Drain)

UNT 3

236th St Road Rehabilitation
DES# 1400760

- Waters Investigation Area
- Delineated Wetland
- NRCS Soils
- Stream
- NWI Wetland

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



RQAW
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10401 North Meridian Street; Suite 401
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Waters of the US

0 500 1,000 2,000 Feet

Location: Sheridan
Township: Adams
County: Hamilton


 3/17/2016

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Hamilton County, Indiana

Map Unit: Br—Brookston silty clay loam, 0 to 2 percent slopes

Component: Brookston (95%)

The Brookston component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on till plains on till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria.

Component: Crosby (5%)

Generated brief soil descriptions are created for major components. The Crosby soil is a minor component.

Map Unit: CrA—Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes

Component: Crosby (93%)

The Crosby component makes up 93 percent of the map unit. Slopes are 0 to 2 percent. This component is on Wisconsin water-lain moraines on till plains. The parent material consists of silty material or loess over loamy till. Depth to a root restrictive layer, densic material, is 24 to 40 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent.

Component: Williamstown, eroded (5%)

Generated brief soil descriptions are created for major components. The Williamstown soil is a minor component.

Component: Treaty, drained (2%)

Generated brief soil descriptions are created for major components. The Treaty soil is a minor component.

Map Unit: MmB2—Miami silt loam, 2 to 6 percent slopes, eroded

Component: Miami, eroded (85%)

The Miami, eroded component makes up 85 percent of the map unit. Slopes are 2 to 6 percent. This component is on till plains, till plains. The parent material consists of loess over loamy till. Depth to a root restrictive layer, densic material, is 24 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 33 percent.

Component: Williamstown (5%)

Generated brief soil descriptions are created for major components. The Williamstown soil is a minor component.

Component: Crosby (5%)

Generated brief soil descriptions are created for major components. The Crosby soil is a minor component.

Component: Treaty (5%)

Generated brief soil descriptions are created for major components. The Treaty soil is a minor component.

Map Unit: MoC3—Miami clay loam, 6 to 12 percent slopes, severely eroded

Component: Miami, severely eroded (97%)

The Miami, severely eroded component makes up 97 percent of the map unit. Slopes are 6 to 12 percent. This component is on till plains, till plains. The parent material consists of loamy till. Depth to a root restrictive layer, densic material, is 24 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 30 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 33 percent.

Component: Crosby (3%)

Generated brief soil descriptions are created for major components. The Crosby soil is a minor component.

Map Unit: Pa—Palms muck

Component: Palms, drained (100%)

The Palms, drained component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on terraces. The parent material consists of herbaceous organic material over loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 65 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 30 percent.

Map Unit: Pn—Patton silty clay loam, 0 to 2 percent slopes

Component: Patton, drained, loamy substratum (80%)

The Patton, drained, loamy substratum component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on till plains. The parent material consists of loamy glaciolacustrine deposits over loamy outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 2w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent.

Component: Crosby (6%)

Generated brief soil descriptions are created for major soil components. The Crosby soil is a minor component.

Component: Treaty, drained (5%)

Generated brief soil descriptions are created for major soil components. The Treaty soil is a minor component.

Component: Starks (4%)

Generated brief soil descriptions are created for major soil components. The Starks soil is a minor component.

Component: Westland, drained (3%)

Generated brief soil descriptions are created for major soil components. The Westland soil is a minor component.

Component: Palms, drained (2%)

Generated brief soil descriptions are created for major soil components. The Palms soil is a minor component.

Map Unit: Sx—Sloan silty clay loam, sandy substratum

Component: Sloan (100%)

The Sloan component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on flood plains. The parent material consists of loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very high. Shrink-swell potential is moderate. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent.

Data Source Information

Soil Survey Area: Hamilton County, Indiana
Survey Area Data: Version 16, Sep 9, 2015