

**Appendix D: Red Flag and Hazardous Materials**

- Red Flag Investigation – October 17, 2017



# INDIANA DEPARTMENT OF TRANSPORTATION

*Driving Indiana's Economic Growth*

100 North Senate Avenue  
Room N642  
Indianapolis, Indiana 46204-2216 (317) 232-5348 FAX: (317) 233-4929

**Eric Holcomb, Governor**  
**Joe McGuinness, Commissioner**

Date: October 17, 2017

To: Hazardous Materials Unit  
Environmental Services  
Indiana Department of Transportation  
100 N Senate Avenue, Room N642  
Indianapolis, IN 46204

From: Briana M. Hope  
American Structurepoint, Inc.  
7260 Shadeland Station  
Indianapolis, IN 46256  
bhope@structurepoint.com

Re: RED FLAG INVESTIGATION  
DES. No. 1382612  
Heavy Haul Transportation Corridor, Des. No. 1382612  
From Jeffersonville Port of Indiana to SR 265  
Utica Township, Clark County, Indiana

## **NARRATIVE**

The Indiana Department of Transportation (INDOT) Central Office, in partnership with the Federal Highway Administration (FHWA), the Indiana Economic Development Corporation, the Ports of Indiana, the Board of Commissioners of Clark County, the City of Jeffersonville Redevelopment Commission, and the River Ridge Development Authority (RRDA), is developing a federal-aid road project to improve connectivity for the Ports of Indiana-Jeffersonville (Port) with other regional transportation assets.

The project area is located in Utica Township, Clark County, Indiana. The area is more specifically located on the Jeffersonville USGS 7.5 Minute Quadrangle Maps in Tracts 7, 15, and 16. The majority of the proposed project is on new alignment with some upgrades to existing roads. Corridor studies are ongoing. The approximately 30-acre project area shown on the attached mapping encompasses the area of the preferred alignment.

The need for the proposed project is due to the current and predicted rapid industrial and commercial development in the area that would result in a significant increase in volume of heavy haul vehicles mixing with local traffic. This growth, combined with the lack of connectivity and suitable roadways for heavy haul vehicles in the area, indicates a need for the proposed project. The purpose of the proposed project is to provide a route built specifically for heavy haul vehicles that provides continuous connection between the River Ridge Commerce Center and the Port via the new State Road (SR) 265/Old Salem Road interchange.

The proposed project consists of the construction of a 3-lane road designed to "heavy haul" specifications. The proposed road would have a design speed of 35 miles per hour with two 13-foot wide travel lanes and 11-foot wide shoulders. The road would likely be constructed on new alignment at a total length of approximately 1.75 miles. While only two lanes would be constructed, right-of-way would be wide enough to allow for future expansion to five lanes if required by traffic demand. It is anticipated that culverts will be installed along the new roadway corridor, and culverts located along

existing roads at the northern and southern termini of the project corridor will be impacted due to the proposed project. The details of these culverts are not known at this time.

Because the proposed roadway would be constructed on new terrain, Maintenance of Traffic (MOT) would not be required for the newly built roadway section. However, during the entire duration of the construction, barricades would be placed at the end of New Middle Road, which is currently a dead end, and connection point to Old Salem Road near the I-265/Old Salem Road interchange. A three-mile detour route for Utica Sellersburg Road would be utilized while the new Heavy Haul Transportation Corridor and Utica Sellersburg Road intersection is being constructed. The detour would direct traffic along Brown Foreman Road, to Utica Pike, to Port Road, to New Middle Road, to Utica Sellersburg Road. The detour would be in place for approximately 90 days.

**SUMMARY - Infrastructure**

<b>Infrastructure</b>			
Indicate the number of items of concern found within 0.5 mile and an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A.			
Religious Facilities	<b>N/A</b>	Recreational Facilities	<b>N/A</b>
Airports	<b>1</b>	Pipelines	<b>1</b>
Cemeteries	<b>2</b>	Railroads	<b>N/A</b>
Hospitals	<b>N/A</b>	Trails	<b>1</b>
Schools	<b>N/A</b>	Managed Lands	<b>1</b>

Explanation:

**Airports**

- One airport is located within 20,000 feet (3.8 miles) of the project area. This airport, the Clark County Regional Airport is a public airport; therefore, early coordination with INDOT Aviation should occur.

**Cemeteries**

- Two cemeteries are located within the one-half mile search radius. The closest of these, the Burt Family Cemetery, is mapped on the USGS topographic mapping approximately 0.34 mile northwest of the project area. Coordination with INDOT Cultural Resources should occur.

**Pipelines**

- One natural gas pipeline owned by Indiana Gas Company, Inc. is mapped within the project area and therefore may be impacted by the proposed project. The pipeline runs northeast and southwest near the center of the project area. Coordination should occur with the INDOT utilities and railroads.

**Trails**

- One potential trail is located within the southern termini of the project area and therefore may be impacted by the proposed project. The Ohio River Greenway to Charlestown State Park Trail, which is managed by the City of Jeffersonville, is proposed to run southwest and northeast through the southwestern portion of the project area. Coordination should occur with the City of Jeffersonville.

**Managed Lands**

- One area of managed land is located within one-half mile of the project area. The Charlestown Military Reservation managed by the U.S. Department of Defense (US DOD) is located approximately 0.40 mile northeast of the project area. Due to the distance from the project area, no impacts are anticipated.

**SUMMARY – Water Resources**

<b>Water Resources</b>			
Indicate the number of items of concern found within 0.5 mile and an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A.			
NWI - Points	<b>2</b>	NWI - Wetlands	<b>23</b>
Karst Springs	<b>N/A</b>	IDEM 303d Listed Lakes	<b>N/A</b>
Canal Structures – Historic	<b>N/A</b>	Lakes	<b>10</b>
NWI - Lines	<b>5</b>	Floodplain - DFIRM	<b>5</b>
IDEM 303d Listed Rivers and Streams (Impaired)	<b>N/A</b>	Cave Entrance Density	<b>N/A</b>
Rivers and Streams	<b>5</b>	Sinkhole Areas	<b>N/A</b>
Canal Routes - Historic	<b>N/A</b>	Sinking-Stream Basins	<b>N/A</b>
Urbanized Area Boundary (UAB)	<b>1</b>		

Explanation:

**NWI – Points**

- Two National Wetland Inventory (NWI) points are located within one-half mile of the project area. The closest NWI point is adjacent to the southern termini of the project area. A Waters of the US Report will be prepared and coordination with INDOT ES Ecology and Waterway Permitting will occur.

**NWI – Lines**

- Five NWI lines are located within one-half mile of the project area. One NWI line crosses through the northern portion of the project area and is classified as Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded (R3UBH) under the Cowardin Classification System. A Waters of the US Report will be prepared and coordination with INDOT ES Ecology and Waterway Permitting will occur.

**Rivers and Streams**

- Five river and stream lines are located within one-half mile of the project area. Of those, two segments, one associated with Lentzier Creek and one with an UNT, are located within the northern and middle section of the project area and therefore may be impacted by the proposed project. A Waters of the US Report will be prepared and coordination with INDOT ES Ecology and Waterway Permitting will occur.

**Urbanized Area Boundary (UAB)**

- The project area lies within the Louisville-Clarksville-New Albany UAB. Post construction Storm Water Quality Best Management Practices (BMPs) may need to be considered. An early coordination letter with topographic and aerial maps showing the project area should be sent to the Jeffersonville Storm Water Department, Storm Water Coordinator, 1<sup>st</sup> Floor of City Hall, 500 Quartermaster Court, Jeffersonville, Indiana 47130.

**NWI – Wetlands**

- Twenty-three NWI wetlands are located within one-half mile of the project area. Three of the 23 wetlands are located adjacent to the project area. A Waters of the US Report will be prepared and coordination with INDOT ES Ecology and Waterway Permitting will occur.

**Lakes**

- Ten lakes are mapped within one-half mile of the project area. The closest lake is located approximately 0.03 mile east of the project area and is classified as Palustrine, Unconsolidated Bottom, Intermittently Exposed, Excavated (PUBGx) under the Cowardin Classification System. A Waters of the US Report will be prepared and coordination with INDOT ES Ecology and Waterway Permitting will occur.

**Floodplain – DFIRM**

- Five floodplain areas are located within one-half mile of the project area. Of these, one mapped floodplain associated with Lentzier Creek described above crosses the northern portion of the project area and therefore may be impacted by the proposed project. Coordination with INDOT ES Ecology and Waterway Permitting will occur.

**SUMMARY – Mining/Mineral Exploration**

<b>Mining/Mineral Exploration</b>			
Indicate the number of items of concern found within 0.5 mile and an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A.			
Petroleum Wells	<b>N/A</b>	Petroleum Fields	<b>N/A</b>
Mines – Surface	<b>N/A</b>	Mines – Underground	<b>N/A</b>

Explanation:

There are no Mining/Mineral Exploration features mapped within half-mile of the project area.

**SUMMARY – Hazardous Material Concerns**

<b>Hazmat Concerns</b>			
Indicate the number of items of concern found within 0.5 mile and an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A.			
Brownfield Sites	<b>N/A</b>	Restricted Waste Sites	<b>N/A</b>
Corrective Action Sites (RCRA)	<b>N/A</b>	Septage Waste Sites	<b>N/A</b>
Confined Feeding Operations	<b>N/A</b>	Solid Waste Landfills	<b>1</b>
Construction Demolition Waste	<b>N/A</b>	State Cleanup Sites	<b>N/A</b>
Industrial Waste Sites (RCRA Generators)	<b>2</b>	Tire Waste Sites	<b>1</b>
Infectious/Medical Waste Sites	<b>N/A</b>	Waste Transfer Stations	<b>N/A</b>
Lagoon/Surface Impoundments	<b>N/A</b>	RCRA Waste Treatment, Storage, and Disposal Sites (TSDs)	<b>N/A</b>
Leaking Underground Storage Tanks (LUSTs)	<b>N/A</b>	Underground Storage Tanks	<b>1</b>
Manufactured Gas Plant Sites	<b>N/A</b>	Voluntary Remediation Program	<b>N/A</b>
NPDES Facilities	<b>2</b>	Superfund	<b>N/A</b>
NPDES Pipe Locations	<b>3</b>	Institutional Control Sites	<b>N/A</b>
Open Dump Sites	<b>N/A</b>		

Explanation:

**Industrial Waste Sites (RCRA Generators)**

- Two points associated with a RCRA generator site are located at 5134 Loop Road and are associated with Steel Dynamics Incorporated. This RCRA generator is located approximately 0.20 mile southwest of the project area. Documentation obtained from the Indiana Department of Environmental Management’s (IDEM) Virtual File Cabinet (VFC) indicates there have been several violations in the past for the Resource Conservation and Recovery Act (RCRA) Small Quantity Generator (SQG) located at this facility. However, in each instance where

compliance was not met for this facility's RCRA SQG, compliance was eventually obtained. None of the violations this facility received are believed to have impacted the project area. Therefore, it is unlikely this facility has adversely impacted the project area, and no further investigation is recommended.

#### **National Pollutants Discharge Elimination System (NPDES) Facilities**

- Two NPDES facilities are mapped within one-half mile of the project area. One NPDES facility owned by Louisville & Indiana Railroad is mapped approximately 0.15 mile east of the project area. Documentation obtained from the IDEM VFC indicates that this facility is located at 2500 Old US 31, which is beyond the investigated area and therefore no impact is expected.
- The Tanco Clark Maritime, LLC facility is a special warehousing and storage facility located adjacent to the southern terminus of the project area at 5144 Utica Pike. This facility is listed under the NPDES database. The most recent Inspection Summary Letter for this facility was obtained on the IDEM VFC (dated October 7, 2014), and stated that there were no observed violations. No impact is expected; however, if the NPDES pipe outfall will be impacted by the proposed project, coordination with Tanco Clark Maritime, LLC, should occur.

#### **NPDES Pipe Locations**

- Three NPDES pipe locations are mapped within one-half mile of the project area. One NPDES pipe location associated with the facility owned by Louisville & Indiana Railroad (described above) is mapped approximately 0.15 mile east of the project area. No impact is expected.
- Two pipe locations are associated with the Tanco Clark Maritime, LLC facility (described above) located at 5144 Utica Pike. The closest of these is located 0.35 mile southeast of the project area along the Ohio River. No impact is expected.

#### **Solid Waste Landfills**

- One solid waste landfill is located within one-half mile of the project area. The Clark County Compost (Agency ID #7188) is located adjacent to the east of the project area at 5217 Utica Pike. This site was originally identified in the Red Flag Investigation prepared by American Structurepoint for the Heavy Haul Transportation Corridor in 2016. However, the solid waste landfill is no longer mapped on the DOT/RedFlagInvestigation database. Documentation obtained on the IDEM VFC indicates that this facility is no longer in operation as of December, 1997. In the Yard Waste Composting Facility Registration document for this facility, it was indicated that this facility was a holding-staging area and yard waste were removed from the site within 48 hours. Because this landfill is adjacent to the project area and may be associated with a historical tire waste site, a Phase II investigation is recommended in order to fully assess and characterize any contamination that has resulted from the past use of this site.

#### **Underground Storage Tanks (UST)**

- One UST is located within the project area. The UST is owned by Clark Maritime Centre (Agency ID #9103) is mapped between Brown Foreman Road and Loop Road, approximately 0.16 mile northwest of Utica Pike. However, documentation obtained from the IDEM VFC indicates this facility is located within the southern portion of the project area at 5100 Port Road, approximately 0.6 mile southwest of the project area. A UST closure report, dated February 2, 1999, was reviewed on the IDEM VFC. The report indicates that two USTs on site were removed from the ground on January 7, 1999. These USTs included one 550-gallon gasoline tank and one 550-gallon diesel tank. Analytical results from 14 soil samples collected after the removal of the USTs indicated THP levels were all below detection limits. Therefore, it is unlikely this site has impacted the project area, and no further investigation is recommended.

#### **Tire Waste Site**

- One tire waste site is mapped within the project area, at the southern terminus. The Pyco Regen Systems Incorporated, Tire Processing Site is located within the southern portion of the project area at 5100 Utica Pike. No documentation was available on the IDEM VFC for this facility. The lack of information regarding disposal methods, amounts, and types of waste resulting from this tire processing facility within the project area is considered a material threat of release. Therefore, this site is considered a recognized environmental condition. A Phase II investigation at this site is recommended in order to fully assess and characterize any contamination that has resulted from the past use of this site.

## Ecological Information

The Clark County listing of the Indiana Natural Heritage Data Center information on endangered, threatened, or rare (ETR) species and high quality natural communities is attached with ETR species highlighted. The Indiana Department of Natural Resources (IDNR) and the U.S. Fish and Wildlife Service (USFWS) should be coordinated with regarding the potential for threatened and endangered species.

A review of the USFWS database conducted on December 6, 2016 indicated the presence of endangered bat species within one-half mile of the project area. The southern half of the project area is primarily industrial with streams traversing through the center. The northern half consists primarily of mature forest with stream corridors throughout.

A Mist Net Survey was conducted by Eco-Tech Consultants from June 28 through July 1, 2016. Eleven bats of three species were captured during the survey effort, including five gray bats (*Myotis grisescens*), four big brown bats (*Eptesicus fuscus*), and two eastern red bats (*Lasiurus borealis*). Although the area provides suitable foraging and roosting habitat for the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*Myotis septentrionalis*), neither species was encountered within the study area at the time of the survey. Therefore, the Scoping Sheet for the Indiana Bat and Northern Long-Eared Bat Range-Wide Programmatic Information Consultation will be prepared and submitted to INDOT Environmental Services for review and concurrence of the findings. If applicable, preparation of the Project Submittal Form for Range-wide Programmatic Consultation for Indiana Bat and Northern Long-Eared Bat will be required. The USFWS should be coordinated with to determine how to proceed with the presence of gray bats in the investigated area.

An inquiry using the USFWS Information for Planning and Consultation (IPaC) website did not indicate that the federal endangered species, the Rusty Patched Bumble bee (*Bombus affinis*), in or within one-half mile of the project area. No impact is expected.

## Cultural Resources

The State Historic Architectural and Archaeological Research Database (SHAARD) was reviewed for the project area on August 25, 2017. According to SHAARD, there are two cemeteries, 2 county survey sites, no National Register Sites, and no Historic Bridges mapped within one-half mile of the project area.

The project area should be investigated for archaeological and historic resources for compliance with Section 106 of the National Historic Preservation Act. Coordination will occur with INDOT ES Cultural Resources.

## RECOMMENDATIONS

### INFRASTRUCTURE:

- One (1) airport, the Clark County Regional Airport, is located within 20,000 feet (3.8 miles) of the project area. This airport is a public airport; therefore, early coordination with INDOT Aviation should occur.
- One (1) natural gas pipeline crosses the project area. Appropriate coordination should occur with the INDOT utilities and railroads.
- One potential trail, the Ohio River Greenway to Charlestown State Park, is mapped within the project area. Appropriate coordination should occur with the City of Jeffersonville.

**WATER RESOURCES:** The presence of the following water resources will require the preparation of a Waters of the US Report and coordination with INDOT ES Ecology and Waterway Permitting:

- Two stream segments, one associated with Lentzier Creek and one with an UNT, flow through the project area.
- One NWI line (R3UBH) flows through the project area.
- The project area is located within a floodplain.
- One NWI-point is located adjacent to the southern termini of the project area.

- Three wetlands are adjacent to the project area.
- One lake is located adjacent to the project area.

Lastly, the project area lies within the Louisville-Clarksville-New Albany UAB. Post construction Storm Water Quality Best Management Practices (BMPs) may need to be considered. An early coordination letter with topographic and aerial maps showing the project area should be sent to the Jeffersonville Storm Water Department, Storm Water Coordinator, 1<sup>st</sup> Floor of City Hall, 500 Quartermaster Court, Jeffersonville, Indiana 47130.

MINING/MINERAL EXPLORATION: N/A

HAZMAT CONCERNS:

- Solid Waste Landfill: One solid waste landfill is located within one-half mile of the project area. The Clark County Compost (Agency ID #7188) is located adjacent to the east of the project area at 5217 Utica Pike. Because this landfill is adjacent to the project area and may be associated with a historical tire waste site, a Phase II investigation is recommended in order to fully assess and characterize any contamination that has resulted from the past use of this site.
- Tire Waste Site: One tire waste site is mapped within the project area, at the southern terminus. The Pycogen Systems Incorporated, Tire Processing Site is located within the southern portion of the project area at 5100 Utica Pike. A Phase II investigation at this site is recommended in order to fully assess and characterize any contamination that has resulted from the past use of this site.

ECOLOGICAL INFORMATION: Early coordination should be conducted with the IDNR and the USFWS regarding the potential for threatened and endangered species in the proposed project area. Preparation of the Scoping Worksheet for the Range-Wide Programmatic Information Consultation for Indiana Bat and Northern Long-Eared Bat will be required. If applicable, preparation of the Project Submittal Form for Range-wide Programmatic Consultation for Indiana Bat and Northern Long-Eared Bat will be required.

CULTURAL RESOURCES: Coordination will occur with INDOT ES Cultural Resources.

INDOT Environmental Services concurrence: Nicole Fohey-Breting (Signature)  
Digitally signed by Nicole Fohey-Breting  
 DN: cn=Nicole Fohey-Breting, o=INDOT, ou=Environmental Services, HazMat, email=NFoheyBreting@indot.in.gov, c=US  
 Date: 2017.10.18 10:17:35 -04'00'

Prepared by:

Briana M. Hope  
 American Structurepoint, Inc.

State Location map in Appendix A

**Graphics:**

- State Location Map
- Topographic Map
- 2016 Aerial Photography
- Red Flag Study Area Map
- RFI Infrastructure Map
- RFI Water Resources Map
- RFI HazMat Concerns Map
- RFI Urbanized Area Boundary Map
- Clark County Natural Heritage Data Center ETR Listing

 Study Area



Path: P:\2013\01857\Drawings\ArcView\Exhibits\Red Flag\2015 Update\Preferred Alternative\2013.01857.EV\2017-06-23.Map.Topo.map.mxd Date: 8/23/2017 User:mdelreal



USGS Topographic Map  
Jeffersonville Quadrangle

Indiana Department of Transportation  
Central Office  
100 North Senate Avenue  
Indianapolis, Indiana 46204

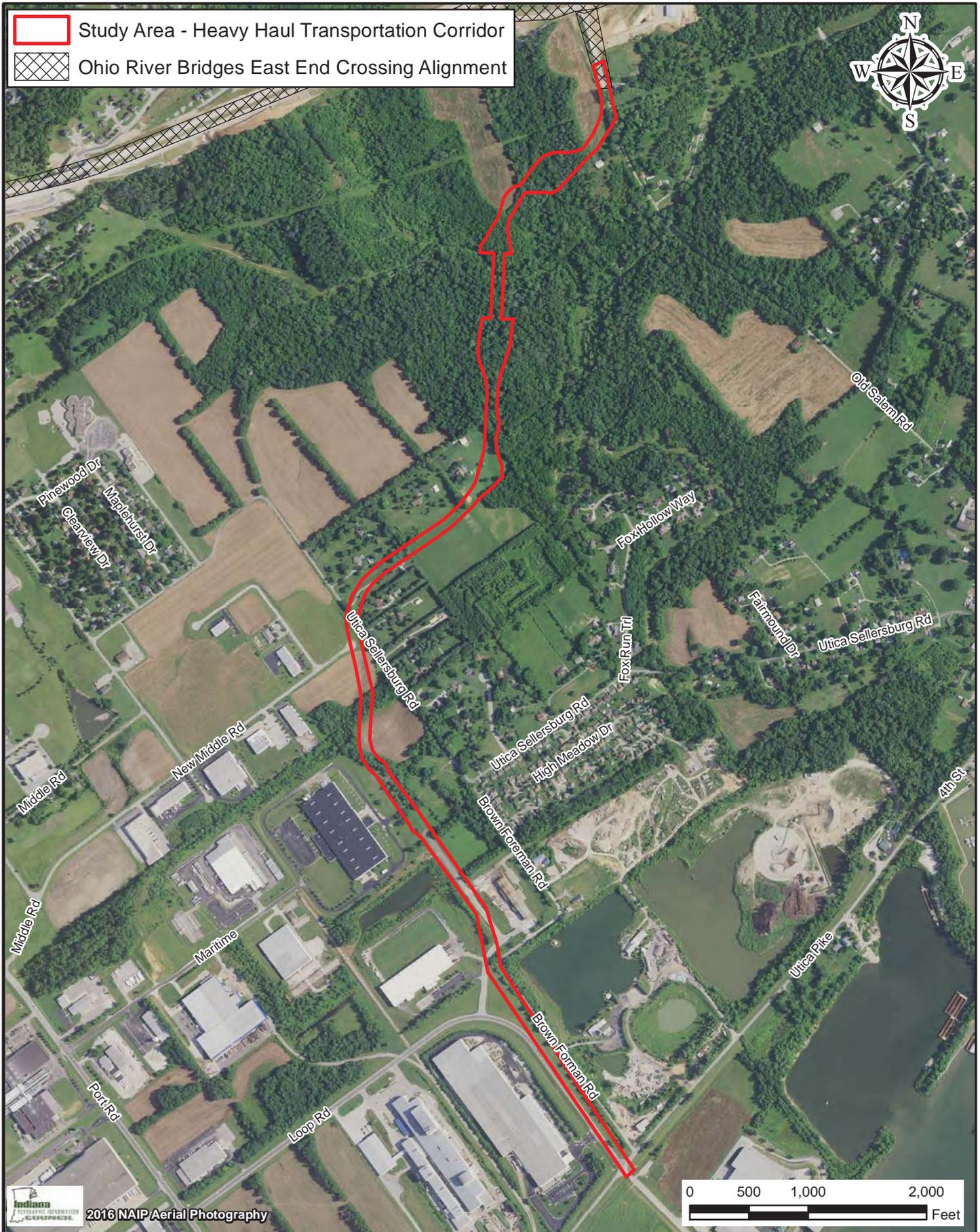
Heavy Haul Transportation Corridor  
Des. No. 1382612

Location: Jeffersonville  
Township: Utica  
County: Clark  
State: Indiana

Date: 08/23/2017

Appendix D  
D-8

 Study Area - Heavy Haul Transportation Corridor  
 Ohio River Bridges East End Crossing Alignment



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2016 NAIP Aerial Photography



**2016 Aerial Photography**  
 Indiana Department of Transportation  
 Central Office  
 100 North Senate Avenue  
 Indianapolis, Indiana 46204

**Heavy Haul Transportation Corridor**  
**Des. No. 1382612**  
 Location: Jeffersonville  
 Township: Utica  
 County: Clark  
 State: Indiana  
 Appendix D  
 D-9

Date: 08/23/2017

- Study Area - Heavy Haul Transportation Corridor
- One-Half Mile Buffer
- Ohio River Bridges East End Crossing Alignment



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2016 NAIP Aerial Photography



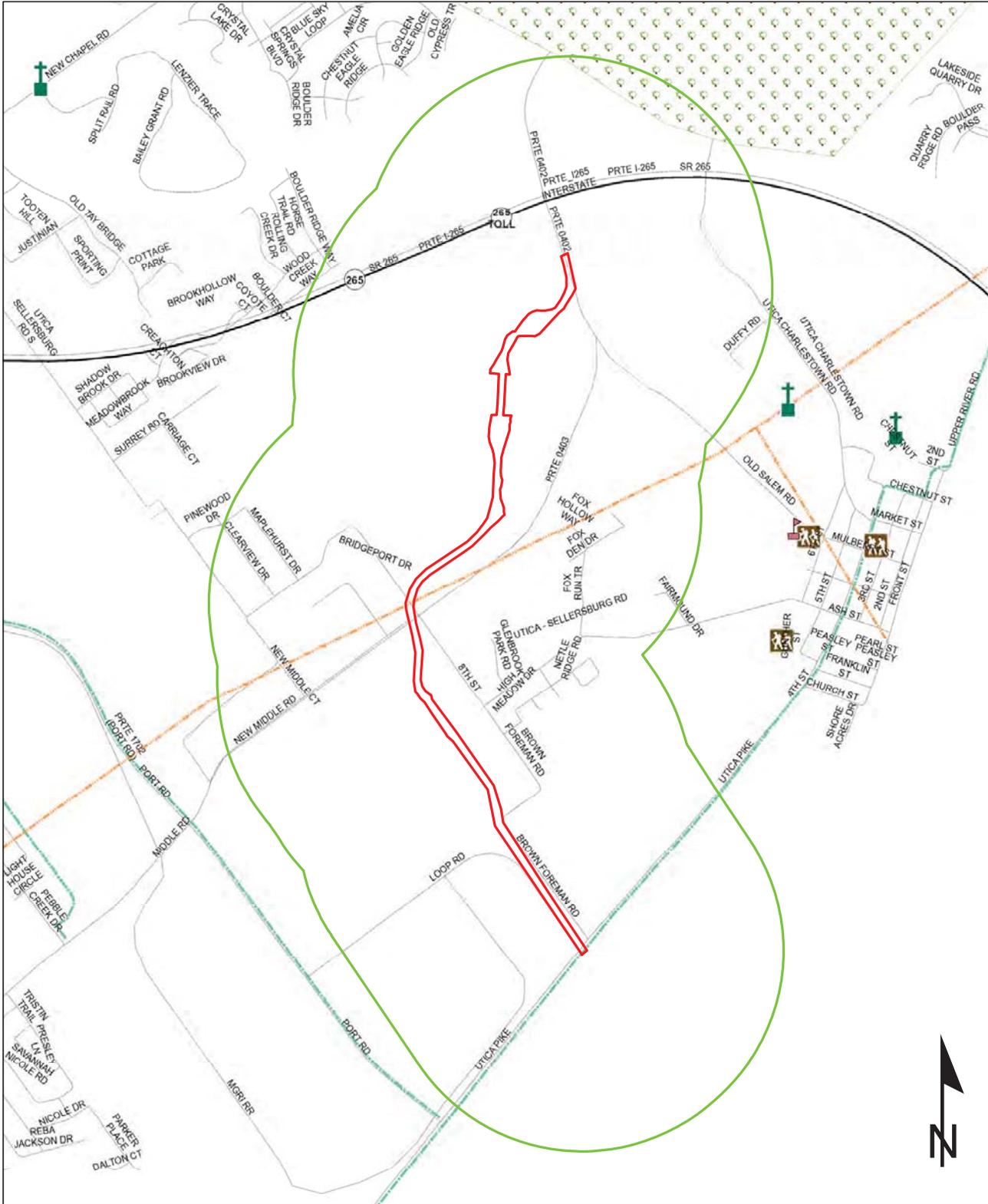
**Red Flag Study Area**

Indiana Department of Transportation  
Central Office  
100 North Senate Avenue  
Indianapolis, Indiana 46204

**Heavy Haul Transportation Corridor**  
Des. No. 1382612

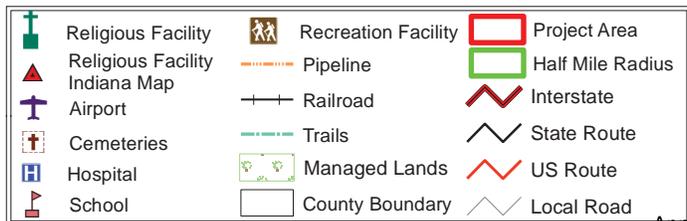
Location: Jeffersonville  
Township: Utica  
County: Clark  
State: Indiana

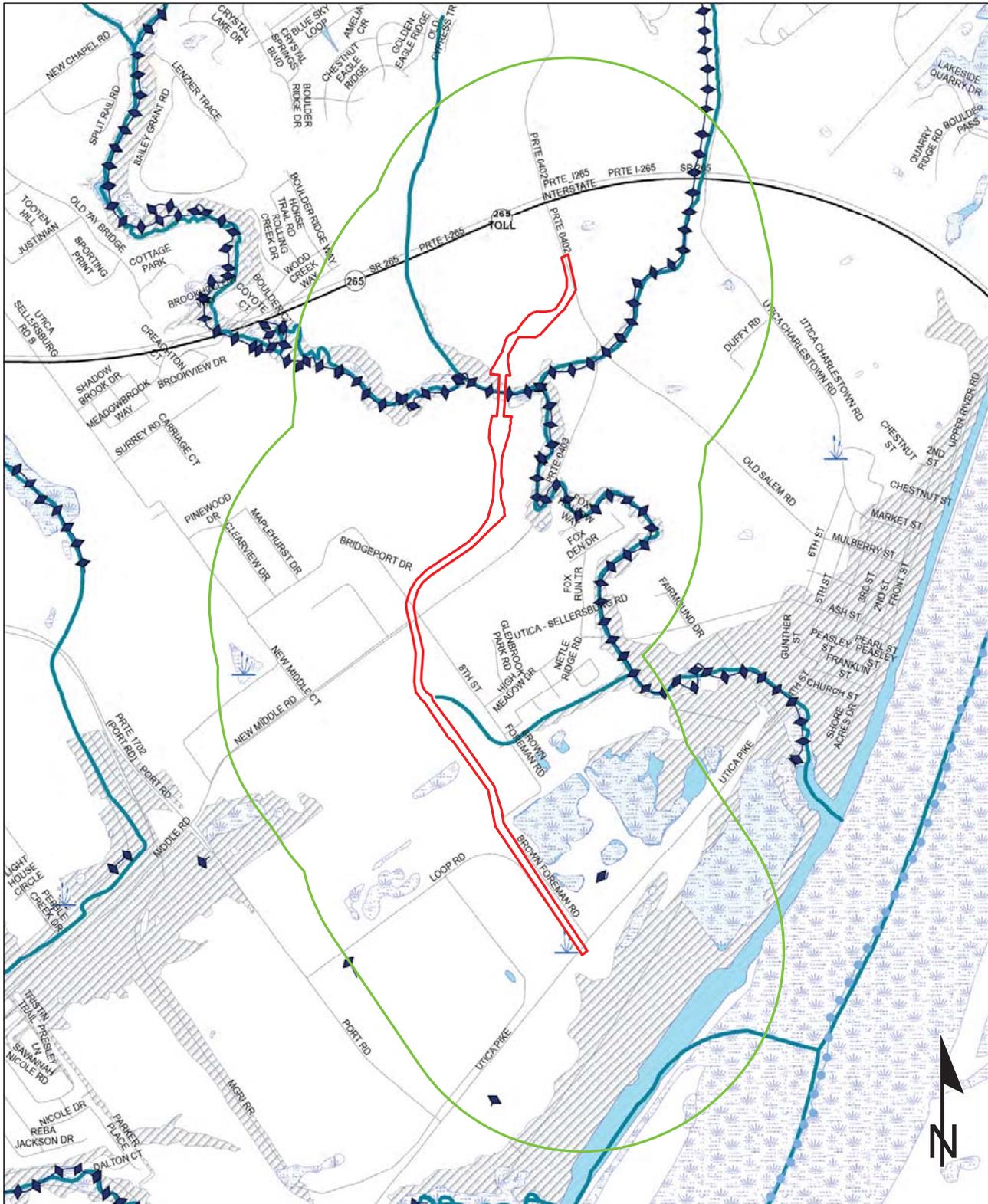
Date: 08/23/2017 Appendix D  
D-10



**Sources:**  
**Non Orthophotography Data** - Obtained from the State of Indiana Geographical Information Office Library  
**Orthophotography** - Obtained from Indiana Map Framework Data ([www.indianamap.org](http://www.indianamap.org))  
**Map Projection:** UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.





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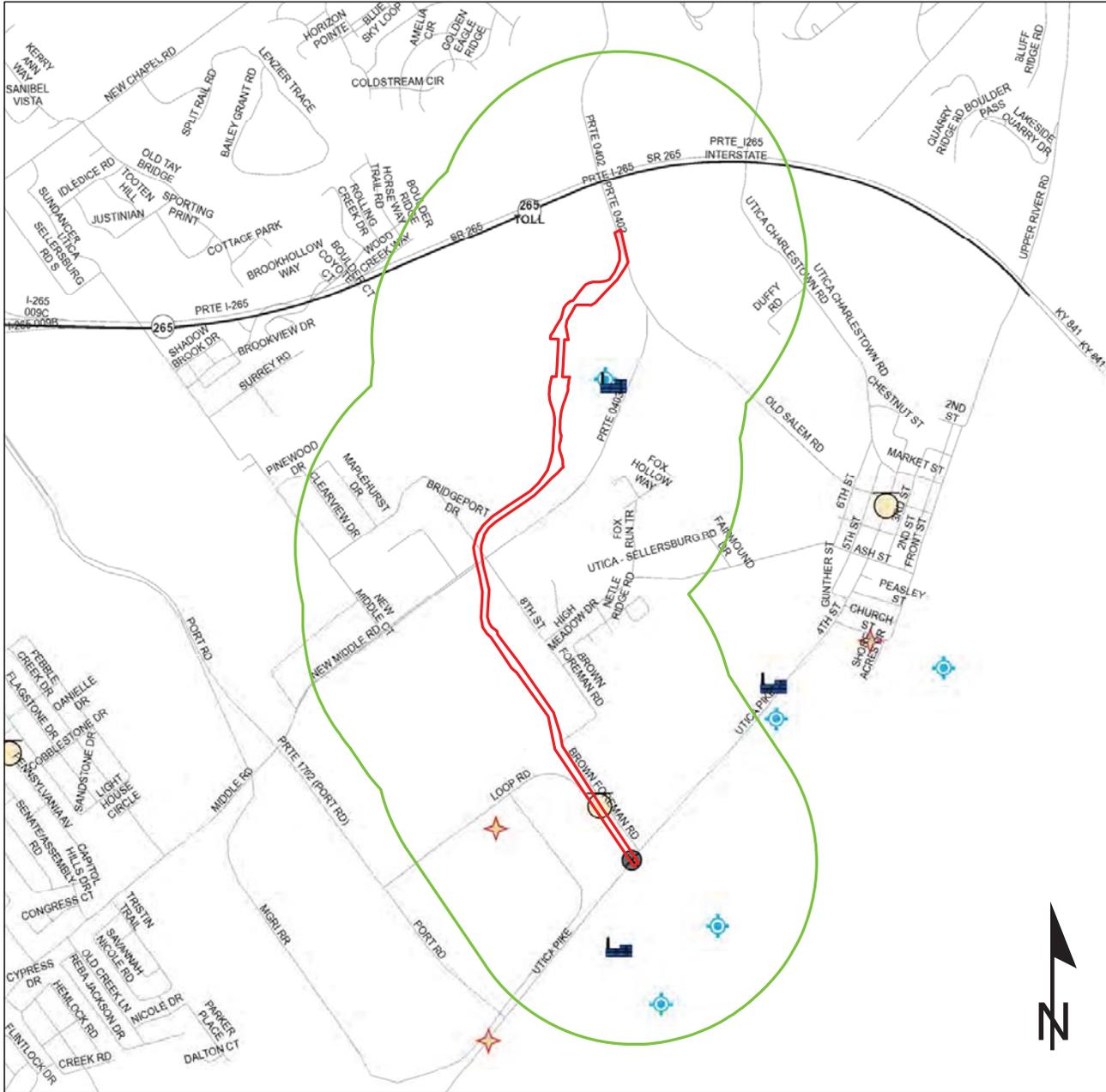
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NWI - Point	Wetlands	Project Area
Karst Spring	Lake - Impaired	Half Mile Radius
Canal Structure - Historic	Lake	Interstate
NWI - Line	Floodplain - DFIRM	State Route
Stream - Impaired	Cave Entrance Density	US Route
NPS NRI listed	Sinkhole Area	Local Road
River	Sinking-Stream Basin	
Canal Route - Historic	County Boundary	



# Red Flag Investigation - HazMat Concerns Heavy Haul Transportation Corridor Des. No. 1382612 Utica Township, Clark County, Indiana



	Brownfield		RCRA Generator/TSD		Institutional Controls
	RCRA Corrective Action Sites		Restricted Waste Site		County Boundary
	Confined Feeding Operation		Septage Waste Site		Project Area
	Construction/Demolition Site		Solid Waste Landfill		Half Mile Radius
	Infectious/Medical Waste Site		State Cleanup Site		Interstate
	Leaking Underground Storage Tank		Superfund		State Route
	Manufactured Gas Plant		Tire Waste Site		US Route
	NPDES Facilities		Underground Storage Tank		Local Road
	NPDES Pipe Locations		Voluntary Remediation Program		
	Open Dump Waste Site		Waste Transfer Station		

0.35 0.175 0 0.35 Miles

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NWI - Point	Wetlands	Project Area
Karst Spring	Lake - Impaired	Half Mile Radius
Canal Structure - Historic	Lake	Interstate
NWI - Line	Floodplain - DFIRM	State Route
Stream - Impaired	Cave Entrance Density	US Route
NPS NRI listed	Sinkhole Area	Local Road
River	Sinking-Stream Basin	
Canal Route - Historic	County Boundary	

## Indiana County Endangered, Threatened and Rare Species List

### County: Clark

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Platyhelminthes (Flatworms)</b>					
Sphalloplana weingartneri	Weingartner's Cave Flatworm		WL	G4	S4
<b>Diplopoda</b>					
Pseudotremia nefanda	Clark Cave Millepede		SE	G3G4	S2
<b>Dipluran</b>					
Campodea plusiochaeta	A Dipluran		SE	GNR	S1
<b>Crustacean: Malacostraca, Amphipods</b>					
Crangonyx ohioensis	An Amphipod			G1G2	S1
Crangonyx packardi	Packard's Cave Amphipod		WL	G4	S3
Gammarus bousfieldi	Bousfield's spring amphipod		SE	G1	S1
Stygobromus mackini	Mackin's cave amphipod		SE	G5	S1
Synurella dentata	Dentate amphipod		WL	GNR	S4
<b>Crustacean: Malacostraca, Isopods</b>					
Caecidotea jordani	Jordan's groundwater isopod		SE	G2G3	S1
<b>Crustacean: Copepoda</b>					
Diacyclops jeanneli	Jeannel's Cave Copepod		ST	G3G4	S2
<b>Mollusk: Bivalvia (Mussels)</b>					
Fusconaia subrotunda	Longsolid		SE	G3	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Potamilus capax	Fat Pocketbook	LE	SE	G2	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Mollusk: Gastropoda</b>					
Fontigens cryptica	Hidden Springs Snail		SE	G1	S1
<b>Ellipluran: Collembola</b>					
Pseudosinella fonsa	Fountain Cave Springtail		ST	G3G4	S2
Sinella alata	Springtail		WL	G5	S4
Sinella cavernarum	A Springtail		WL	G5	S4
<b>Insect: Coleoptera (Beetles)</b>					
Aleochara lucifuga	Rove beetle		WL	GNR	S4
Atheta annexa	Rove beetle		WL	G4	S4
Batrisodes krekeri	Krekeler's cave ant beetle		SE	G1	S1
Dryobius sexnotatus	Six-banded Longhorn Beetle		ST	GNR	S2
Pseudanophthalmus barri	Cave Beetle		SE	G1G2	S1
<b>Insect: Lepidoptera (Butterfly)</b>					
Artogeia virginiensis	West Virginia White		SR	G3?	S3
Celastrina nigra	Sooty Azure		ST	G4	S2
<b>Arachnida</b>					
Dolomedes scriptus	Lined Nursery Web Spider			GNR	S1?
Dolomedes vittatus	Nursery Web Spider			GNR	S1

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## Indiana County Endangered, Threatened and Rare Species List

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<b>Fish</b>						
<i>Acipenser fulvescens</i>	Lake Sturgeon		SE	G3G4	S1	
<i>Etheostoma variatum</i>	Variagate Darter		SE	G5	S1	
<b>Amphibian</b>						
<i>Acris blanchardi</i>	Northern Cricket Frog		SSC	G5	S4	
<i>Cryptobranchus alleganiensis alleganiensis</i>	Eastern Hellbender		SE	G3G4T3T4	S1	
<b>Reptile</b>						
<i>Clonophis kirtlandii</i>	Kirtland's Snake		SE	G2	S2	
<i>Crotalus horridus</i>	Timber Rattlesnake		SE	G4	S2	
<i>Opheodrys aestivus</i>	Rough Green Snake		SSC	G5	S3	
<i>Tantilla coronata</i>	Southeastern Crowned Snake		SE	G5	S1	
<i>Terrapene carolina carolina</i>	Eastern Box Turtle		SSC	G5T5	S3	
<b>Bird</b>						
<i>Aimophila aestivalis</i>	Bachman's Sparrow			G3	SXB	
<i>Ammodramus henslowii</i>	Henslow's Sparrow		SE	G4	S3B	
<i>Coragyps atratus</i>	Black Vulture			G5	S1N,S2B	
<i>Dendroica cerulea</i>	Cerulean Warbler		SE	G4	S3B	
<i>Helmitheros vermivorus</i>	Worm-eating Warbler		SSC	G5	S3B	
<i>Lanius ludovicianus</i>	Loggerhead Shrike		SE	G4	S3B	
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron		SE	G5	S1B	
<i>Tyto alba</i>	Barn Owl		SE	G5	S2	
<b>Mammal</b>						
<i>Mustela nivalis</i>	Least Weasel			SSC	G5	S2?
<i>Myotis grisescens</i>	Gray Bat	LE	SE	G3	S1	
<i>Myotis sodalis</i>	Indiana Bat or Social Myotis	LE	SE	G2	S1	
<i>Taxidea taxus</i>	American Badger		SSC	G5	S2	
<b>Vascular Plant</b>						
<i>Acalypha deamii</i>	Mercury		SR	G4?	S2	
<i>Asclepias viridis</i>	Green Milkweed		SE	G4G5	S1	
<i>Asplenium resiliens</i>	Black-stem Spleenwort		SE	G5	S1	
<i>Asplenium ruta-muraria</i>	Wallrue Spleenwort		SR	G5	S2	
<i>Aster schreberi</i>	Schreber Aster		SE	G4	S1	
<i>Azolla caroliniana</i>	Carolina Mosquito-fern		ST	G5	S2	
<i>Calamagrostis porteri ssp. insperata</i>	Reed Bent Grass		ST	G4T3	S1	
<i>Carex eburnea</i>	Ebony Sedge		SR	G5	S2	
<i>Carex straminea</i>	Straw Sedge		ST	G5	S2	
<i>Chaerophyllum procumbens var. shortii</i>	Wild Chervil		ST	G5T3T4Q	S1	
<i>Cirsium carolinianum</i>	Carolina Thistle		SR	G5	S2	
<i>Cuscuta indecora</i>	Pretty Dodder		SE	G5	S1	

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Eleocharis bifida	Glades spikerush		SE	G3G4	S1
Euphorbia obtusata	Bluntleaf Spurge		SE	G5	S1
Gonolobus obliquus	Angle Pod		SR	G4?	S2
Heliotropium tenellum	Slender Heliotrope		ST	G5	S2
Hexalectris spicata	Crested Coralroot		SR	G5	S2
Hottonia inflata	Featherfoil		ST	G4	S2
Iresine rhizomatosa	Eastern Bloodleaf		SR	G5	S2
Isoetes engelmannii	Appalachian Quillwort		SE	G4	S1
Lathyrus venosus	Smooth Veiny Pea		ST	G5	S2
Leavenworthia uniflora	Michaux Leavenworthia		SE	G4	S1
Lechea racemulosa	Illinois Pinweed		SE	G5	S1
Linum sulcatum	Grooved Yellow Flax		SR	G5	S2
Ludwigia decurrens	Primrose Willow		WL	G5	S2
Magnolia acuminata	Cucumber Magnolia		SE	G5	S1
Melica nitens	Three-flower Melic Grass		ST	G5	S2
Melothria pendula	Creeping Cucumber		SE	G5?	S1
Ophioglossum engelmannii	Limestone Adder's-tongue		SR	G5	S2
Oxalis illinoensis	Illinois Woodsorrel		WL	G4Q	S2
Panicum bicknellii	A Panic-grass		SE	G4?Q	S1
Passiflora incarnata	Purple Passion-flower		SR	G5	S2
Penstemon deamii	Deam Beardtongue		SR	G1	S1
Phlox amplifolia	Large-leaved Phlox		SR	G3G5	S2
Polypodium polypodioides	Resurrection Fern		SR	G5	S2
Rhexia mariana var. mariana	Maryland Meadow Beauty		ST	G5T5	S1
Rubus centralis	Illinois Blackberry		SE	G2?Q	S1
Satureja glabella var. angustifolia	Calamint		SE	G5	S1
Scutellaria parvula var. australis	Southern Skullcap		WL	G4T4?	S2
Sedum telephiodes	Allegheny Stonecrop		SR	G4	S2
Solidago squarrosa	Stout-ragged Goldenrod		SE	G4?	S1
Spiranthes magnicamporum	Great Plains Ladies'-tresses		SE	G4	S1
Stachys clingmanii	Clingman Hedge-nettle		SE	G2	S1
Strophostyles leiosperma	Slick-seed Wild-bean		ST	G5	S2
Sullivantia sullivantii	Sullivantia		ST	G4	S2
Thalictrum pubescens	Tall Meadowrue		ST	G5	S2
Tragia cordata	Heart-leaved Noseburn		WL	G4	S2
Trifolium reflexum var. glabrum	Buffalo Clover		SE	G5T2T4Q	S1
Trifolium stoloniferum	Running Buffalo Clover	LE	SE	G3	S1
Valerianella chenopodiifolia	Goose-foot Corn-salad		SE	G5	S1
Viburnum molle	Softleaf Arrow-wood		SR	G5	S2
Viola hirsutula	Southern Wood Violet		SE	G4	S1

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<b>High Quality Natural Community</b>					
Barrens - bedrock limestone	Limestone Glade		SG	G4	S2S3
Barrens - bedrock siltstone	Siltstone Glade		SG	G2	S2
Forest - upland dry	Dry Upland Forest		SG	G4	S4
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
<b>Other Significant Element</b>					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

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