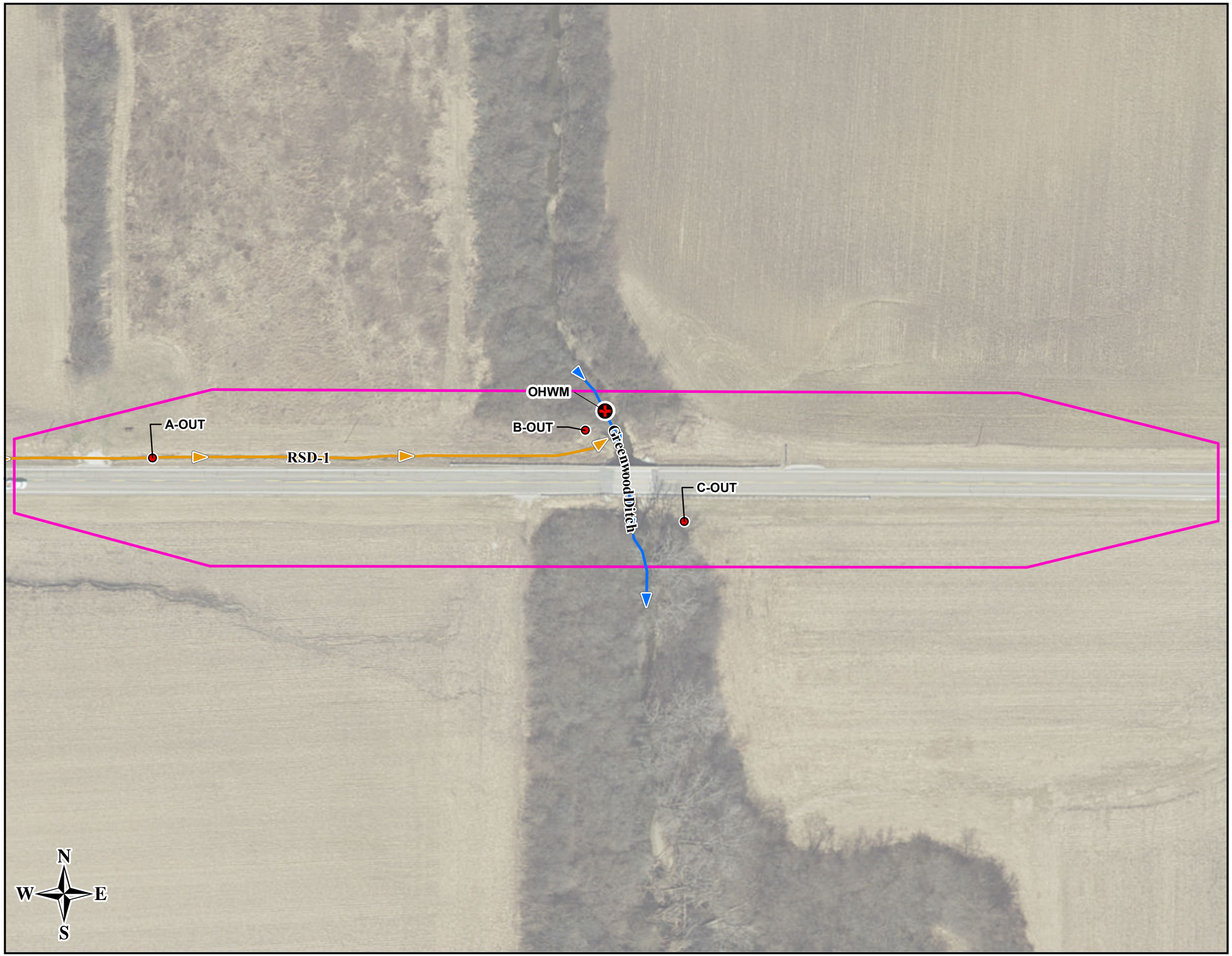
Des. No. 2002000

SR 18 at East Crossing of Greenwood Ditch

Bridge Project
6.84 Miles East of US 52
Benton County

Field-Identified Resources Map

- Area of Investigation
- Likely Jurisdictional Streams
- Other Concentrated Flows
- Wetland Data Point
- Non-Wetland Data Point
- OHWM Measurement Point



0 60 120 180 240 Feet

0 0.01 0.02 0.03 0.04 Miles

Absolute Scale - 1:1,100

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

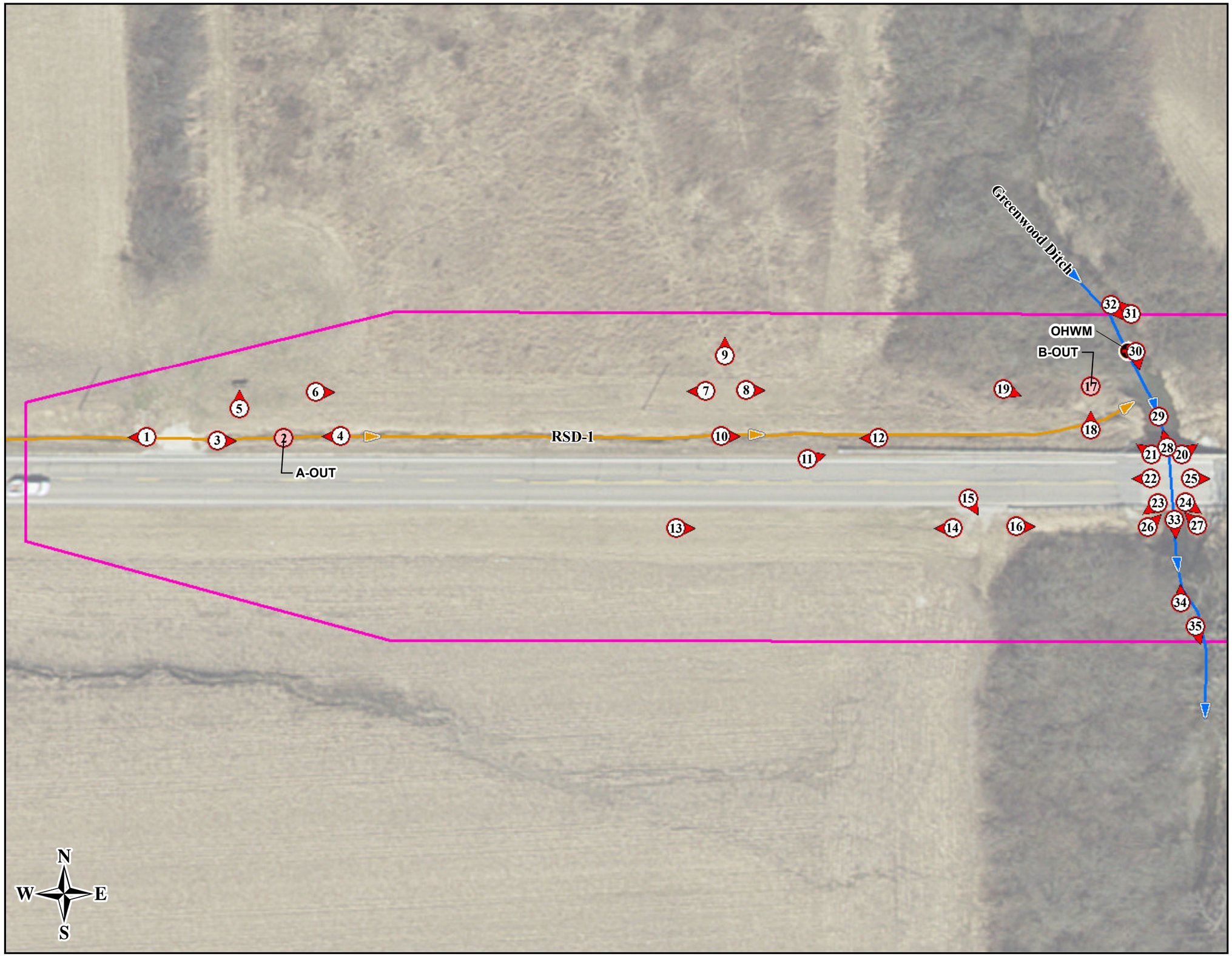
Des. No. 2002000

SR 18 at East Crossing of Greenwood Ditch

Bridge Project
6.84 Miles East of US 52
Benton County

Photo Orientation Map

- Area of Investigation
- Likely Jurisdictional Streams
- Other Concentrated Flows
- Photo Orientation Arrow
- Downward Photo
- Downward Photo (Data Point)
- OHWM Measurement Point



Feet
0 30 60 90 120
0 0.0065 0.013 0.0195 0.026 Miles
Absolute Scale - 1:590

Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
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SR 18 at East Crossing of Greenwood Ditch

Bridge Project
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Benton County

Photo Orientation Map

- Area of Investigation
- Likely Jurisdictional Streams
- Other Concentrated Flows
- Photo Orientation Arrow
- Downward Photo
- Downward Photo (Data Point)
- OHWM Measurement Point

Feet
0 30 60 90 120
0 0.0065 0.013 0.0195 0.026 Miles
Absolute Scale - 1:590

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

Photo 1 – RSD-1: Facing west along the north side of SR 18 beyond the review area and along the man-made roadside ditch (RSD-1).

Photo 2 – Data Point A: Facing down toward soil sample from wetland determination point A-OUT. Soils did not exhibit hydric soil indicators.

Photo 3 – Data Point A & RSD-1: Facing east along RSD-1 toward data point A-OUT. This segment of the ditch exhibited hydrophytic vegetation due to dominance of reed canary grass.

Photo 4 – Data Point A & RSD-1: Facing west along RSD-1 toward data point A-OUT. A-OUT exhibited wetland hydrology due to geomorphic position and the FAC-neutral test, but no water or saturation were present.

Photo 5 – Northwest Quadrant: Facing north toward the sign at the entrance of the Greenwood Ditch Gamebird Habitat Area, owned by IDNR, which is located in the northwest quadrant of the project area.

Photo 6 – Northwest Quadrant: Facing east along IDNR access path and SR 18 road frontage of Greenwood Ditch Gamebird Habitat Area. No indications of wetlands observed.

Photo 7 – Northwest Quadrant: Facing west along IDNR access path and SR 18 road frontage of Greenwood Ditch Gamebird Habitat Area. No indications of wetlands observed.

Photo 8 – Northwest Quadrant: Facing east along IDNR access path and SR 18 road frontage of Greenwood Ditch Gamebird Habitat Area. No indications of wetlands observed.

Photo 9 – Northwest Quadrant: Facing north toward gamebird habitat area containing Indian grass and other upland species. No indications of wetlands observed.

Photo 10 – RSD-1: Facing east along the vegetated RSD-1. During the growing season, RSD-1 did not exhibit a consistent OHWM.

Photo 11 – RSD-1: Facing northeast toward RSD-1 and northwest quadrant of crossing. RSD-1 was heavily vegetated and did not exhibit a consistent OHWM.

Photo 12 – RSD-1: Facing east along RSD-1 from near the SR 18 bridge over Greenwood Ditch.

Photo 13 – Southwest Quadrant: Facing east along grassy right-of-way in the southwest quadrant of the project area. SR 18 bridge and Greenwood Ditch in background.

Photo 14 – Southwest Quadrant: Facing west along grassy right-of-way in southwest quadrant of the project area from field access drive.

Photo 15 – Southwest Quadrant: Facing southeast toward the southwest quadrant of the project area from a field access drive. Pile of log debris in background is presumably from past tree clearing along riparian.

Photo 16 – Southwest Quadrant: Facing east along short vegetated roadside ditch in southwest quadrant near bank of Greenwood Ditch.

Photo 17 – Data Point B: Facing down toward soil sample from wetland determination point B-OUT. Soils did not exhibit hydric soil indicators.

Photo 18 – Data Point B: Facing north toward area of data point B-OUT. Amur honeysuckle and Japanese bristle grass were the primary dominant species, with abundant field mustard and great ragweed adjacent. Hydrophytic vegetation indicators were not present.

Photo 19 – Data Point B: Facing east toward area of data point B-OUT. Wetland hydrology indicators, surface water, and saturation were not present.

Photo 20 – Northeast Quadrant of Crossing: Facing northeast toward the northeast bank of Greenwood Ditch at the SR 18 bridge.

Photo 21 – Northwest Quadrant of Crossing: Facing northwest toward the northwest bank of Greenwood Ditch at the SR 18 bridge. Location of data point B-OUT in background along tree line.

Photo 22 – SR 18 Crossing: Facing west along SR 18 from the top of the bridge over Greenwood Ditch. Topography is generally flat to rolling. Creek and bridge sit in a shallow depression of the landscape.

Photo 23 – Southwest Quadrant of Crossing: Facing southeast toward the southeast bank of Greenwood Ditch at the SR 18 bridge.

Photo 24 – Southeast Quadrant at Crossing: Facing southwest toward the southwest bank of Greenwood Ditch at the SR 18 bridge. Location of data point A-OUT in background along tree line.

Photo 25 – SR 18 at Crossing: Facing east along SR 18 from the top of the bridge over Greenwood Ditch. Topography is generally flat to rolling. Creek and bridge sit in a shallow depression of the landscape.

Photo 26 – Greenwood Ditch: Facing northeast toward the riprapped embankment along the east abutment of the SR 18 bridge at Greenwood Ditch.

Photo 27 – Greenwood Ditch: Facing northwest toward the riprapped embankment along the west abutment of the SR 18 bridge at Greenwood Ditch.

Photo 28 – Greenwood Ditch: Facing upstream to the north along Greenwood ditch from the north side of the SR 18 bridge.

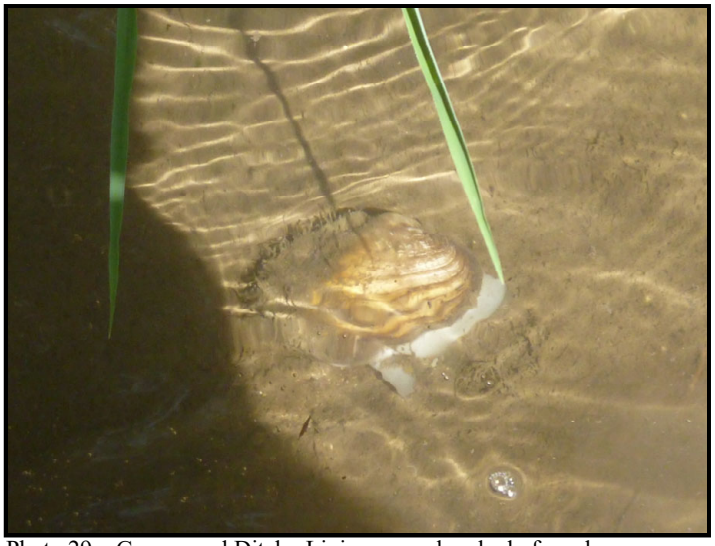

Photo 29 – Greenwood Ditch: Living mussel on bed of creek.

Photo 30 – Greenwood Ditch: Facing downstream to the south along Greenwood Ditch toward the SR 18 bridge, INDOT Structure No. 018-04-01689 B. The existing bridge has a single 34-foot span, with a total length of 54 feet.

Photo 31 – Greenwood Ditch: Facing upstream to the northwest along Greenwood ditch from approximately 75 north of the bridge. Bank-full depth along this segment was approximately 10 feet deep.

Photo 32 – Greenwood Ditch: Facing downstream to the southeast along Greenwood Ditch from approximately 75 feet north of the bridge. At this location, the creek exhibited an OHWM of 24.5 feet wide by 20 inches deep.

Photo 33 – Greenwood Ditch: Facing downstream to the south along Greenwood Ditch from the south side of the SR 18 bridge.

Photo 34 – Greenwood Ditch: Facing upstream to the north along Greenwood Ditch toward the SR 18 bridge.

Photo 35 – Greenwood Ditch: Facing downstream to the southeast along Greenwood ditch from south of the bridge. Bank-full depth at this location was variable at 7 to 10 feet.

Photo 36 – Data Point C: Facing down toward soil sample from wetland determination point C-OUT. Soils did not exhibit hydric soil indicators.

Photo 37 – Data Point C: Facing northwest toward data point C-OUT. Primary dominant vegetation was amur honeysuckle and reed canary grass. Hydrophytic vegetation indicators were not present.

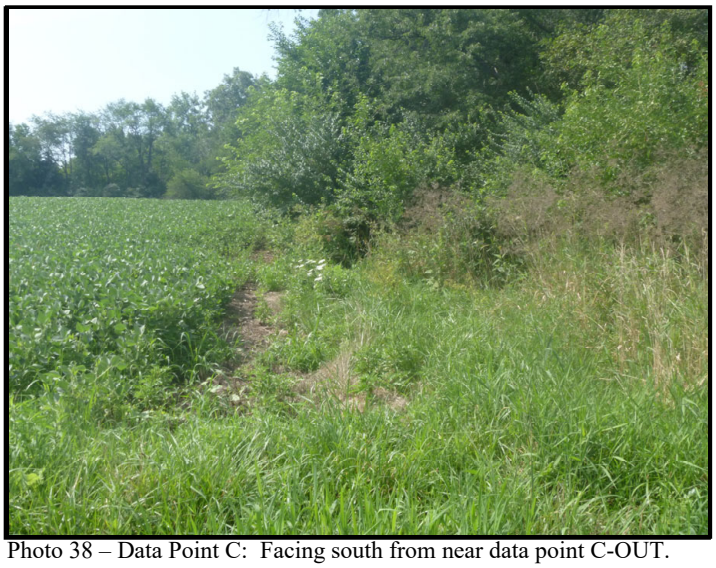

Photo 38 – Data Point C: Facing south from near data point C-OUT. Wetland hydrology indicators, surface water, and saturation were not present.

Photo 39 – Southeast Quadrant: Facing southwest toward southeast quadrant of bridge. Location of data point C-OUT is in background along tree line.

Photo 40 – Southeast Quadrant: Facing southeast from the southeast quadrant of the project location. Roadside ditch is a vegetated, poorly defined swale.

Photo 41 – Northeast Quadrant: Facing west toward the northeast quadrant of the SR 18 bridge. Vegetation consists of numerous generally upland species, including amur honeysuckle, red mulberry, great ragweed, Canadian thistle, tall goldenrod, and Japanese bristle grass.

Photo 42 – Northeast Quadrant: Facing northwest toward the northeast quadrant of the SR 18 bridge from a field access drive.

Photo 43 – Northeast Quadrant: Facing northeast along the north side of SR 18 in the northeast quadrant of the project area. The roadside ditch is a grassy swale.

Photo 44 – Northeast Quadrant: Facing northeast toward farmland in the northeast quadrant from a field access location. Topography and GIS mapping shows a surface water feature in the field, but none is present.

Photo 45 – Northeast Quadrant: Facing west along the north side of SR 18 in the northeast quadrant. The roadside ditch is a grassy swale.

Photo 46 – Northeast Quadrant: Facing east along the north side of SR 18 in the northeast quadrant of the project area. The roadside ditch is a grassy swale.

Photo 47 – Southeast Quadrant: Facing west along the south side of SR 18 near the west end of the review area. The roadside ditch is a grassy swale.

Photo 48 – Southeast Quadrant: Facing east along the south side of SR 18 beyond the review area. The roadside ditch is a grassy swale.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Des. 2002000: SR 18 at Greenwood Ditch City/County: Benton Sampling Date: 8/3/2022

Applicant/Owner: INDOT, Crawfordsville District State: IN Sampling Point: A-OUT

Investigator(s): Brock Ervin, Ben Neild (INDOT, DE) Section, Township, Range: Section 14, T 25 N, R 7 W

Landform (hillslope, terrace, etc.): Roadside Ditch Local relief (concave, convex, none): Concave

Slope (%): < 5% Lat: 40.606049° Long: -87.178380° Datum: NAD 1983

Soil Map Unit Name: OlB2 - Odell Silt Loam, 2 - 4% Slopes, Eroded NWI classification: Non-Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Data point located within man-made roadside ditch in northwest quadrant of project area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft. radius)			
1. *Phalaris arundinacea (Reed Canary Grass)*	70	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		140 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 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.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: A-OUT

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 3/1	100					St Lm	Lots of Gravel
8-20	10YR 3/1	70					St Lm	Less gravel
	10YR 4/1	30					St Lm	Less gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Des. 2002000: SR 18 at Greenwood Ditch City/County: Benton Sampling Date: 8/3/2022

Applicant/Owner: INDOT, Crawfordsville District State: IN Sampling Point: B-OUT

Investigator(s): Brock Ervin, Ben Neild (INDOT, DE) Section, Township, Range: Section 14, T 25 N, R 7 W

Landform (hillslope, terrace, etc.): Flat, Wooded Stream Riparian Local relief (concave, convex, none): None

Slope (%): < 5% Lat: 40.606127° Long: -87.176825° Datum: NAD 1983

Soil Map Unit Name: Sh - Selma Silty Loam, Till Substratum NWI classification: Non-Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Southeast quadrant of bridge along tree/scrub-shrub boundary beyond roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Lonicera Maackii (Amur Honeysuckle)*	15	Y	UPL
2. *Populus deltoides (Eastern Cottonwood)*	10	Y	FAC
3. *Maclura pomifera (Osage-Orange)*	2	N	FACU
4. *Crataegus mollis (Downy Hawthorn)*	2	N	FAC
5.			
	29	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Lonicera Maackii (Amur Honeysuckle)*	40	Y	UPL
2.			NI
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5 ft. radius)			
1. *Setaria faberi (Japanese Bristle Grass)*	60	Y	FACU
2. *Phalaris arundinacea (Reed Canary Grass)*	30	Y	FACW
3. *Ambrosia trifida (Great Ragweed)*	10	N	FAC
4. *Brassica rapa (Field Mustard/Rape)*	5	N	UPL
5. *Ambrosia artemisiifolia (Annual Ragweed)*	1	N	FACU
6.			
7.			
8.			
9.			
10.			
	106	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft. radius)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	22	x 3 =	66
FACU species	63	x 4 =	252
UPL species	60	x 5 =	300
Column Totals:	175 (A)		678 (B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 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.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: B-OUT

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 3/1	100					St Lm	
6 - 7.5	10YR 3/1	45					St Lm	Possibly old farmland
	10YR 6/1	45	10YR 6/6	10%	C	M	St Cl	Reduced Matrix/Redox layer in clumps
7.5 - 15	10YR 2/1	80					St Lm	
	10YR 3/1	20					St Lm	
15 - 24	10YR 3/2	100					St Lm	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Des. 2002000: SR 18 at Greenwood Ditch City/County: Benton Sampling Date: 8/3/2022

Applicant/Owner: INDOT, Crawfordsville District State: IN Sampling Point: C-OUT

Investigator(s): Brock Ervin, Ben Neild (INDOT, DE) Section, Township, Range: Section 14, T 25 N, R 7 W

Landform (hillslope, terrace, etc.): Flat Wooded Riparian Local relief (concave, convex, none): None

Slope (%): < 2% Lat: 40.605878° Long: -87.176468° Datum: NAD 1983

Soil Map Unit Name: Sh - Selma Silty Clay Loam, Till Substratum NWI classification: Non-Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Southeast quadrant of bridge along woodland boundary, beyond ditch swale.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Lonicera Maackii (Amur Honeysuckle)*	15	Y	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Lonicera Maackii (Amur Honeysuckle)*	20	Y	UPL
2. *Morus rubra (Red Mulberry)*	10	Y	FACU
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft. radius)			
1. *Phalaris arundinacea (Reed Canary Grass)*	70	Y	FACW
2. *Pastinaca sativa (Wild Parsnip)*	8	N	UPL
3. *Calystegia sepium (Hedge False Bindweed)*	8	N	FAC
4. *Cirsium vulgare (Bull Thistle)*	1	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft. radius)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	8	x 3 =	24
FACU species	11	x 4 =	44
UPL species	43	x 5 =	215
Column Totals:	132 (A)		423 (B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 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.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point: C-OUT

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 2/2	100					St Lm	
6 - 20	GLEY1 3/10Y	100					St Lm	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: April 14, 2023

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Brock N. Ervin, Indiana Dept. of Transportation, Crawfordsville District
41 W 300 N, Crawfordsville, IN 47933

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

Location:
SR 18 at the East Crossing of Greenwood Ditch
Between CR 700 E and CR 850 E in Benton County, Indiana
6.84 Miles East of US 52 at INDOT Reference Post (RP) 18+99
Sections 14 and 23 of Township 25 North, Range 7 West
USGS 7.5' Templeton Quadrangle
Latitude: 40.605985°, Longitude: -87.176662°

Background Information:
INDOT, Crawfordsville District, with funding from FHWA, has programmed Des. No. 2002000 to address the deteriorating condition of the superstructure and substructure of the bridge at the east crossing of SR 18 over Greenwood Ditch in Benton County.

The existing bridge is INDOT Structure No. 018-04-01689 B (NBI No. 4570), which is a single-span concrete box beam bridge with a length of 54 feet (spanning 34 feet) and a width of 30 feet (27.5 feet between the bridge rails). The approach roads include two 10-foot travel lanes with very narrow shoulders. The preferred alternative is to replace the bridge.

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Indiana County/parish/borough: Benton City:

Center coordinates of site (lat/long in degree decimal format):

Lat.: 40.605985 Long.: -87.176662

Universal Transverse Mercator: NAD 1983

Name of nearest waterbody: Greenwood Ditch

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

☒ Office (Desk) Determination. Date: August 2, 2022

☒ Field Determination. Date(s): August 3, 2022

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Greenwood Ditch	40.605985°	-87.176662°	0.104 acre, 185 linear feet	non-wetland	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

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 AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) 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) 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) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (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 PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives 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 AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, 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. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: Aerial, topographic, NHD, FEMA, NWI, GIS, etc.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: _____.
  - [x] USGS NHD data.
  - [ ] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 7.5' Templeton Quadrangle.
- [x] Natural Resources Conservation Service Soil Survey. Citation: SSURGO.
- [x] National wetlands inventory map(s). Cite name: USFWS NWI (GIS Based).
- [ ] State/local wetland inventory map(s): _____.
- [x] FEMA/FIRM maps: GIS Based (and IDNR FARA Floodway Mapping).
- [x] 100-year Floodplain Elevation is: 718 ft. (NAVD88).(National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): Indiana State Aerial Imagery.
  or [x] Other (Name & Date): INDOT Site Photography, 8/3/2022.
- [ ] 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.

4/14/2023

Signature and date of Regulatory staff member completing PJD

Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Appendix G: Public Involvement

INDIANA DEPARTMENT OF TRANSPORTATION

Crawfordsville District
41 W 300 N
Crawfordsville, IN 47933

PHONE: (765) 361-5200

Eric Holcomb, Governor
Michael Smith, Commissioner

Sample Notice of Entry Letter

Re: Des. No.: 2002000, Bridge Project, SR 18 over Greenwood Ditch, 6.84 Miles East of US 52, Benton County

Notice of Entry for Survey or Investigation
July 12, 2022

Dear Property Owner,

Our information indicates that you own property near the above proposed transportation project, State Parcel ID No. 04-09-23-800-001.000-013. Representatives of the Indiana Department of Transportation will be conducting environmental surveys of the project area in the near future. It may be necessary for them to enter onto your property to complete this work. This is permitted under Indiana Code § 8-23-7-26. Anyone performing this type of work has been instructed to identify him or herself to you, if you are available, before they enter your property. If you no longer own this property or it is currently occupied by someone else, please let us know the name of the new owner or occupant so that we can contact them about the survey.

Please read the attached notice to inform you of what the "Notice of Entry for Survey or Investigation" means. The survey work may include the identification and mapping of wetlands, archaeological investigations (which may involve the survey, testing, or excavation of identified archaeological sites), and various other environmental studies. The information we obtain from such studies is necessary for the proper planning and design of this highway project.

This Notice of Entry is considered valid for 6 months from the date of this letter. If any problems do occur, please contact the field crew or contact Brock Ervin at 765-361-5669 or bervin@indot.in.gov.

Please be aware that you have the right to request any or all artifacts collected from your property. If you do not ask that artifacts be returned to you, all recovered archaeological material will be curated at a state-approved Qualified Curation Facility. If you wish to have artifacts returned to you, please call or email Shaun Miller at 317-233-6795 or smiller@indot.in.gov.

It our sincere desire to cause as little inconvenience as possible during this survey, and we thank you in advance for your cooperation.

Sincerely,
Brock N. Ervin
Environmental Manager 2
Crawfordsville District
Indiana Department of Transportation

Attachment (reverse)

INDIANA DEPARTMENT OF TRANSPORTATION

Crawfordsville District
41 W 300 N
Crawfordsville, IN 47933

PHONE: (765) 361-5200

Eric Holcomb, Governor
Michael Smith, Commissioner

Indiana Department of Transportation
Notice of Entry for Survey or Investigation
Indiana Department of Transportation

If you have received a "Notice of Entry for Survey or Investigation" from INDOT or an INDOT representative, you may be wondering what it means. In the early stages of a project's development, INDOT must collect as much information as possible to ensure that sound decisions are made in designing the proposed project. Before entering onto private property to collect that data, INDOT is required to notify landowners that personnel will be in the area and may need to enter onto their property. Indiana Code, Title 8, Article 23, Chapter 7, Section 26 deals with the department's authority to enter onto any property within Indiana.

Receipt of a Notice of Entry for Survey or Investigation does not necessarily mean that INDOT will be buying property from you. It doesn't even necessarily mean that the project will involve your property at all. Since the Notice of Entry for Survey or Investigation is sent out in the very early stages and since we want to collect data within AND surrounding the project's limits more landowners are contacted than will actually fall within the eventual project limits. It may also be that your property falls within the project limits but we will not need to purchase property from you to make improvements to the roadway. Another thing to keep in mind is that when you receive a Notice of Entry for Survey or Investigation, very few specifics have been worked out and actual construction of the project may be several years in the future.

Before INDOT begins a project that requires them to purchase property from landowners, they must first offer the opportunity for a public hearing. If you were on the list of people who received a Notice of Entry for Survey or Investigation, you should also receive a notice informing you of your opportunity to request a public hearing. These notices will also be published in your local newspaper so interested individuals who are not adjacent to the project will also have the opportunity to request a public hearing. If a public hearing is to be held, INDOT will publicize the date, location, and time. INDOT will present detailed project information at the public hearing, comments will be taken from the public in spoken and written form, and question and answer sessions will be offered. Based on the feedback INDOT receives from the public, a project can be modified and improved to better serve the public.

So, if you have received a "Notice of Entry for Survey or Investigation", remember:

1. You do not need to take any action at this time. It is merely letting you know that people in orange/lime vests are going to be in your neighborhood.
2. The project is still in its very early planning stages.
3. You will be notified of your opportunity to comment on the project at a later date.

INDIANA DEPARTMENT OF TRANSPORTATION

Crawfordsville District
41 W 300 N
Crawfordsville, IN 47933

PHONE: (765) 361-5200

Eric Holcomb, Governor
Michael Smith, Commissioner

Sample Notice of Entry Letter

Re: Des. No.: 2002000, Bridge Project, SR 18 over Greenwood Ditch, 6.84 Miles East of US 52, Benton County

Notice of Entry for Survey or Investigation
April 24, 2023

Dear Property Owner,

Our information indicates that you own property near the above proposed transportation project, State Parcel ID No. 04-09-14-700-033.000-013. Representatives of the Indiana Department of Transportation will be conducting environmental surveys of the project area in the near future. It may be necessary for them to enter onto your property to complete this work. This is permitted under Indiana Code § 8-23-7-26. Anyone performing this type of work has been instructed to identify him or herself to you, if you are available, before they enter your property. If you no longer own this property or it is currently occupied by someone else, please let us know the name of the new owner or occupant so that we can contact them about the survey.

Please read the attached notice to inform you of what the "Notice of Entry for Survey or Investigation" means. The survey work may include the identification and mapping of wetlands, archaeological investigations (which may involve the survey, testing, or excavation of identified archaeological sites), and various other environmental studies. The information we obtain from such studies is necessary for the proper planning and design of this highway project.

This Notice of Entry is considered valid for 6 months from the date of this letter. If any problems do occur, please contact the field crew or contact Brock Ervin at 765-361-5669 or bervin@indot.in.gov.

Please be aware that you have the right to request any or all artifacts collected from your property. If you do not ask that artifacts be returned to you, all recovered archaeological material will be curated at a state-approved Qualified Curation Facility. If you wish to have artifacts returned to you, please call or email Matt Coon at 317-697-9752 or mcoon@indot.in.gov.

It our sincere desire to cause as little inconvenience as possible during this survey, and we thank you in advance for your cooperation.

Sincerely,
Brock N. Ervin
Environmental Manager 2
Crawfordsville District
Indiana Department of Transportation

Attachment (reverse)

INDIANA DEPARTMENT OF TRANSPORTATION

Crawfordsville District
41 W 300 N
Crawfordsville, IN 47933

PHONE: (765) 361-5200

Eric Holcomb, Governor
Michael Smith, Commissioner

Indiana Department of Transportation
Notice of Entry for Survey or Investigation
Indiana Department of Transportation

If you have received a "Notice of Entry for Survey or Investigation" from INDOT or an INDOT representative, you may be wondering what it means. In the early stages of a project's development, INDOT must collect as much information as possible to ensure that sound decisions are made in designing the proposed project. Before entering onto private property to collect that data, INDOT is required to notify landowners that personnel will be in the area and may need to enter onto their property. Indiana Code, Title 8, Article 23, Chapter 7, Section 26 deals with the department's authority to enter onto any property within Indiana.

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So, if you have received a "Notice of Entry for Survey or Investigation", remember:

1. You do not need to take any action at this time. It is merely letting you know that people in orange/lime vests are going to be in your neighborhood.
2. The project is still in its very early planning stages.
3. You will be notified of your opportunity to comment on the project at a later date.

Appendix H: Air Quality

Federal Transit Administration
Region V
200 West Adams St., Suite 320
Chicago, IL 60606-5253

U.S. Department of Transportation

Federal Highway Administration
Indiana Division
575 N. Pennsylvania St., Rm 254
Indianapolis, IN 46204-1576

September 1, 2023

Mr. Michael Smith
Commissioner
Indiana Department of Transportation
100 N Senate Ave. N955
Indianapolis, IN 46204

SUBJECT: Indiana FY2024-2028 STIP Approval and Associated Federal Planning Finding

Dear Mr. Smith:

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have completed our review of the FY2024-2028 Indiana Statewide Transportation Improvement Program (INSTIP), which was submitted by the Indiana Department of Transportation (INDOT) request letter dated August 23, 2023.

Based on our review of the information provided, certifications of the Statewide and Metropolitan transportation planning processes for and within the state of Indiana, and our participation in those transportation planning processes (including planning certification reviews conducted in Transportation Management Areas), FHWA and FTA are jointly approving the FY2024-2028 STIP, including the Metropolitan Planning Organization (MPO) Transportation Improvement Programs (TIPs) incorporated into the STIP by reference, subject to the corrective actions identified in the attached Federal Planning Finding (FPF) report. FHWA and FTA consider the projects in the 5th year for informational purposes only, and our approval does not exceed four years per 23 CFR 450.220(c).

FHWA and FTA are required under 23 CFR 450.220(b) to document and issue an FPF in conjunction with the approval of the FY2024-2028 STIP. At a minimum, the FPF verifies that the development of the STIP is consistent with the provisions of both the Statewide and Metropolitan transportation planning requirements. FHWA and FTA find that the Indiana FY2024-2028 STIP substantially meets the transportation planning requirements and are approving the STIP subject to the corrective actions outlined in the FPF. This approval is effective September 1, 2023 and is given with the understanding that an eligibility determination of individual projects for funding must be met, and INDOT must ensure the satisfaction of all administrative and statutory requirements, as well as address the corrective actions outlined in the attached report.

If you have questions or need additional information concerning our approval and the FPF, please contact Ms. Erica Tait of the FHWA Indiana Division at (317) 226-7481, or by email at erica.tait@dot.gov, or Mr. Tony Greep of the FTA Region 5 Office at (312) 353-1646, or by email at anthony.greep@dot.gov.

Sincerely,

KELLEY BROOKINS
Digitally signed by KELLEY BROOKINS
Date: 2023.08.31 17:33:15 -05'00'

Kelley Brookins
Regional Administrator
FTA Region V

Sincerely,

JERMAINE R HANNON
Digitally signed by JERMAINE R HANNON
Date: 2023.09.01 11:46:31 -04'00'

Jermaine R. Hannon
Division Administrator
FHWA Indiana Division

SPONSOR	CONTRACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	DISTRICT	MILES	FEDERAL CATEGORY	Total Cost of Project*	PROGRAM	PHASE	FEDERAL	MATCH	2024	2025	2026	2027	2028
Indiana Department of Transportation	43453 / 2002000	Init.	SR 18	Bridge Replacement	Crawfordsville	0	STBG	$2,159,000.00	Bridge Construction	CN	$1,695,200.00	$423,800.00	$80,000.00	$2,039,000.00			
Performance Measure Impacted: Bridge Condition																	
Location: 6.84 mi E of US 52; over Greenwood Ditch																	
Comments:Include DES 2002000																	
Indiana Department of Transportation	43688 / 2100187	Init.	SR 55	HMA Overlay Minor Structural	Crawfordsville	1.38	STBG	$4,805,000.00	Safety Construction	CN	$727,200.00	$181,800.00	$73,000.00		$836,000.00		
									Road Construction	CN	$2,748,000.00	$687,000.00		$500,000.00	$2,935,000.00		
									Safety ROW	RW	$40,000.00	$10,000.00		$50,000.00			
									Road ROW	RW	$320,000.00	$80,000.00	$200,000.00	$200,000.00			
Performance Measure Impacted: Pavement Condition																	
Location: SR 55, From SR 352 S Jct to 0.82 mi N of SR 352 N Jct (Oxford) andintersection at US 41 & SR 18.																	
Comments:Include DES 2100059, 2100187																	
Indiana Department of Transportation	43690 / 2100058	Init.	US 41	Intersect. Improv. W/ Added Turn Lanes	Crawfordsville	.2	NHPP	$1,557,000.00	Safety ROW	RW	$24,000.00	$6,000.00		$30,000.00			
									Safety Construction	CN	$1,004,000.00	$251,000.00	$84,000.00	$269,000.00	$902,000.00		
Performance Measure Impacted: Safety																	
Location: US 41 & SR 352																	
Comments:Include DES 2100058																	
Indiana Department of Transportation	44370 / 2200796	Init.	SR 352	Pavement Replacement	Crawfordsville	.78	STBG	$7,193,000.00	Bridge Construction	CN	$120,000.00	$30,000.00			$150,000.00		
									Road Consulting	PE	$924,000.00	$231,000.00	$1,155,000.00				
									Road ROW	RW	$144,000.00	$36,000.00			$180,000.00		
									Safety ROW	RW	$44,000.00	$11,000.00			$55,000.00		
									Safety Construction	CN	$370,400.00	$92,600.00			$50,000.00	$413,000.00	
									Road Construction	CN	$4,505,600.00	$1,126,400.00			$250,000.00	$5,382,000.00	
Performance Measure Impacted: Pavement Condition																	
Location: SR 352, Pavement Replacement from 0.75 mi W of US 41 (Gillen Ditch) to US 41, adding Bike/Ped facilities. HMA Overlay Preventive Maintenance SR 352 from SR 55 E jct. to US 52.																	
Comments:Include DES 2200091, 2200796, 2200797																	

*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

Appendix I: Additional Studies and Information

Land and Water Conservation Fund (LWCF) County Property List for Indiana (Last Updated March 2022)

ProjectNumber	SubProjectCode	County	Property
1800027	1800027	Benton	Fowler Park and Community Swimming Pool
1800535	1800535	Benton	Fowler Park and Community Swimming Pool
1800569	1800569	Benton	Fowler Park and Community Swimming Pool

*Park names may have changed. If acquisition of publically owned land or impacts to publically owned land is anticipated, coordination with IDNR, Division of Outdoor Recreation, should occur.

Bridge Inspection Report

018-04-01689 B
SR 18
over
GREENWOOD DITCH

Inspection Date: 01/04/2022

Inspected By: Daniel W. Bewley

Inspection Type(s): Routine

1/04/2022 Bridge is in overall fair condition.
No Maintenance Letter was written
SPMS shows New Bridge Des# 2002000, Contract# B-43453, Letting 7/10/2024
History
1/01/1981 Rehab B Deck Replacement Des# Unknown, Contract# Unknown
1/01/1963 Rehab A Replace Superstructure Des# Unknown, Contract # Unknown
1/01/1934 New Bridge Des# Unknown, Contract# Unknown
New Proposed Bridge to be built under Contract B-43453, DES # 2002000, to be LET on 07/10/2024.
New Bridge will be 018-04-10730, NBI # 004571. Bill Dittrich 09/16/2021.

IDENTIFICATION

(1) STATE CODE:	185 - Indiana
(8) STRUCTURE:	004570
(5 A-B-C-D-E) INV. ROUTE:	1 - 3 - 1 - 00018 - 0
(2) HIGHWAY AGENCY DISTRICT:	01 - Crawfordsville
(3) COUNTY CODE:	004 - BENTON
(4) PLACE CODE:	00000 - N/A
(6) FEATURES INTERSECTED:	GREENWOOD DITCH
(7) FACILITY CARRIED:	SR 18
(9) LOCATION:	06.84 E US 52
(11) MILEPOINT:	0018.990

(12) BASE HIGHWAY NETWORK:	0
(13A) INVENTORY ROUTE:	
(13B) SUBROUTE NUMBER:	
(16) LATITUDE:	40.606
(17) LONGITUDE:	-87.17667
(98) BORDER	
A) STATE NAME:	
B) PERCENT	%
(99) BORDER BRIDGE STRUCT. NO:	

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN:	
A) KIND OF MATERIAL/DESIGN:	5 - Prestressed concrete
B) TYPE OF DESIGN/CONSTR:	05 - Box Beam or Girders - Multiple
(44) STRUCTURE TYPE, APPROACH SPANS:	
A) KIND OF MATERIAL/DESIGN:	0 - Other
B) TYPE OF DESIGN/CONSTR:	00 - Other

(45) NUMBER OF SPANS IN MAIN UNIT:	001
(46) NUMBER OF APPROACH SPANS:	0000
(107) DECK STRUCTURE TYPE:	1 - Concrete Cast-in-Place
(108) WEARING SURFACE/PROT SYS:	
A) WEARING SURFACE:	1 - Monolithic Concrete (concurrently placed with structural deck)
B) DECK MEMBRANE:	0 - None
C) DECK PROTECTION:	1 - Epoxy Coated Reinforcing

AGE OF SERVICE

(27) YEAR BUILT:	1934
(106) YEAR RECONSTRUCTED:	1981
(42) TYPE OF SERVICE:	
A) ON BRIDGE:	1 - Highway
B) UNDER BRIDGE:	5 - Waterway

(28) LANES:		
A) ON BRIDGE:	02	
B) UNDER BRIDGE:	00	
(29) AVERAGE DAILY TRAFFIC:	000904	
(30) YEAR OF AVERAGE DAILY TRAFFIC:	2004	
(109) AVERAGE DAILY TRUCK TRAFFIC:	10	%
(19) BYPASS DETOUR LENGTH:	004	MI

GEOMETRIC DATA

(48) LENGTH OF MAX SPAN:	0034.8	FT	(35) STRUCTURE FLARED:	0 - No flare	
(49) STRUCTURE LENGTH:	00054.0	FT	(10) INV RTE, MIN VERT CLEARANCE:	99.99	FT
(50) CURB/SIDEWALK WIDTHS:			(47) TOT HORIZ CLEARANCE:	027.5	FT
A) LEFT	1	FT	(53) VERT CLEAR OVER BR RDWY:	99.99	FT
B) RIGHT:	1	FT	(54) MIN VERTICAL UNDERCLEARANCE:		
(51) BRDG RDWY WIDTH CURB-TO-CURB:	027.5	FT	A) REFERENCE FEATURE:	N	
(52) DECK WIDTH, OUT-TO-OUT:	030.3	FT	B) MIN VERT UNDERCLEAR:	0	FT
(32) APPROACH ROADWAY	026.0	FT	(55) LATERAL UNDERCLEARANCE RIGHT:		
(33) BRIDGE MEDIAN:	0 - No median		A) REFERENCE FEATURE:	N	
			B) MIN LATERAL UNDERCLEAR:	000.0	FT
(34) SKEW:	00	DEG	(56) MIN LATERAL UNDERCLEAR ON LEFT:	00.0	FT

INSPECTIONS

(90) INSPECTION DATE:	01/04/2022	(91) DESIGNATED INSPECTION FREQUENCY:	24 MONTHS
(92) CRITICAL FEATURE INSPECTION:		(93) CRITICAL FEATURE INSPECTION DATE:	
A) FRACTURE CRITICAL REQUIRED/FREQUENCY:	N	A) FRACTURE CRITICAL DATE:	
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY:	N	B) UNDERWATER INSP DATE:	
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY:	N	C) OTHER SPECIAL INSP DATE:	

CONDITION

(58) DECK:	6 - Satisfactory Condition (minor deterioration)	(60) SUBSTRUCTURE:	5 - Fair Condition (minor section loss)
(58.01) WEARING SURFACE:	6 - Satisfactory Condition	(61) CHANNEL/CHANNEL PROTECTION:	7 - Bank protection needs minor repairs
(59) SUPERSTRUCTURE:	5 - Fair Condition (minor section loss)	(62) CULVERTS:	N - Not Applicable

CONDITION COMMENTS

(58) DECK: 6 - Satisfactory Condition (minor deterioration)

Comments:
There are longitudinal cracks located above the locations where the box beams meet along with diagonal cracking and a minor pocking. The deck underside cannot be seen, box beams cover underside. (Both curbs have spall; the north being the worst, having rebar exposed.)

(58.01) WEARING SURFACE: 6 - Satisfactory Condition

Comments:
(Monolithic) See deck comments

(59) SUPERSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:
The outer north and south beam line along each side of the bridge has guardrail connected to the bottom in several locations. Each connection is bolted and there is a spall in the box beams around some of these connections. The north facia box beam has longitudinal cracking with efflorescence and has spalling with rebar exposed on the north face.

(60) SUBSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:
There are large spalls on both bents along with cracking and some efflorescence. All four corners of the abutments have spall, and the facia beams are continuous over these corners

(61) CHANNEL/CHANNEL PROTECTION 7 - Bank protection needs minor repairs

Comments:
The water flows from the North to the South. Channel protection is riprap placed along the banks.

(62) CULVERTS: N - Not Applicable

Comments:

LOAD RATING AND POSTING

(31) DESIGN LOAD:	4 - H 20	(66) INVENTORY RATING:	39.744
(70) BRIDGE POSTING	5 - Equal to or above legal loads	(65) INVENTORY RATING METHOD:	1 - Load Factor (LF)
		(66B) INVENTORY RATING (H):	
(41) STRUCTURE OPEN/POSTED/CLOSED:	A - Open	(66C) TONS POSTED :	
		(66D) DATE POSTED/CLOSED:	
(64) OPERATING RATING:	66.348		
(63) OPERATING RATING METHOD:	1 - Load Factor (LF)		

APPRAISAL

SUFFICIENCY RATING:	76.9	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	0	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	5	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	5	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	1

(71) WATERWAY ADEQUACY: 7 - Slight Chance of Overtopping Bridge

Comments:
No plans available showing high water elevation or profile grade elevation

(72) APPROACH ROADWAY ALIGNMENT: 8 - Equal to present desirable criteria

Comments:
No substantial reduction in speed is necessary for traffic to safely cross the bridge

(113) SCOUR CRITICAL BRIDGES: 5 - Scour within limits of footing or piles

Comments:
Previous Note (unable to verify accuracy): spread footings, NO piles, footing exposed @ east abutment
No scour seen during 2021 inspection.
Scour Memo 9/16/2021 talks about different types of bridges that could be built & what could determine the scour.

CLASSIFICATION

(20) TOLL:	3 - On Free Road	(21) MAINT. RESPONSIBILITY:	01 - State Highway Agency
(22) OWNER:	01 - State Highway Agency	(26) FUNCTIONAL CLASS OF INVENTORY RTE:	07 - Rural - Major Collector
(37) HISTORICAL SIGNIFICANCE:	5 - Not eligible	(100) STRAHNET HIGHWAY:	Not a STRAHNET route
(101) PARALLEL STRUCTURE:	N - No parallel structure	(102) DIRECTION OF TRAFFIC:	2-way traffic
(103) TEMPORARY STRUCTURE:		(104) HIGHWAY SYSTEM OF INVENTORY ROUTE:	0 - Structure/Route is NOT on NHS
(105) FEDERAL LANDS HIGHWAYS:	0-Not Applicable	(110) DESIGNATED NATIONAL NETWORK:	Inventory route not on network
(112) NBIS BRIDGE LENGTH:	Yes		

NAVIGATION DATA

(38) NAVIGATION CONTROL:	0 - No navigation control on waterway (bridge permit not required)	(39) NAVIGATION VERTICAL CLEAR:	000.0 FT
(111) PIER OR ABUTMENT PROTECTION:		(116) MINIMUM NAVIGATION VERT. CLEARANCE, VERT. LIFT BRIDGE:	FT
		(40) NAV HORIZONTAL CLEARANCE:	0000.0 FT

PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK:		(95) ROADWAY IMPROVEMENT COST:	$ 000000
(75B) WORK DONE BY:		(96) TOTAL PROJECT COST:	$ 000000
(76) LENGTH OF IMPROVEMENT:	000000 FT	(97) YR OF IMPROVEMENT COST EST:	
(94) BRIDGE IMPROVEMENT COST:	$ 000000	(114) FUTURE AVG DAILY TRAFFIC:	001499
		(115) YR OF FUTURE ADT:	2030

Miscellaneous Asset Data

004570

Asset Management

Load Rating 2:

Has the dead load or the structural condition of the primary load carrying members changed since the last inspection? No

---

Extended Frequency: Submittal Date:

Inspector:

INDOT Reviewer:

This bridge has been accepted into the Extended Frequency Program. Approval Date:

Joints: ** Indicate location, type, and rating of lowest rated joint.*

No Joints Present

Comments:

Terminal Joints: **Rating of lowest rated terminal joint.* N

Comments:

Concrete Slopewall: **Rating of lowest rated slopewall.* N

Comments:

Bearings: ** Indicate type, and rating of lowest rated bearing.*

N - No Bearing(s)

Comments:

Approach Slabs: ** Indicate if present & condition rating.*

N - No Approach Slabs

Comments:

Paint: ** Indicate if paint present , year painted & condition rating.*

N - No Paint N

Comments:

Endangered Species: ** If yes, add one photo to the dropdown field*

Bats: seen or heard under structure? * N - No evidence of bats

Birds/swallows/nests seen? Empty nests present? * N

BRIDGE Culvert Geometry:

Barrel Length:

Height:

Width:

NBI Data come from National Inventory

NBI 113: Scour Critical Bridges	5	NBI 113a Scour Critical Bridges Comments	Previous Note (unable to verify accuracy): spread footings, NO piles, footing exposed @ east abutment No scour seen during 2021 inspection. Scour Memo 9/16/2021 talks about different types of bridges that could be built & what could determine the scour.

To Be Completed by Hydraulics

Scour Analysis Status	7-Bridge programmed to be rehabbed or replaced.	Scour Analysis Date	Scour Analysis Determination

Hydraulics Comments

To Be Completed by Bridge Inspection

Scour Critical Safety Status	Date of Counter Measure Placed or Field Verified

Bridge Inspectoin Comments

Scour Delineators installed

LOAD RATING - BRADIN

Load Rating Date: 31-AUG-09

National Bridge Inventory (NBI):

(65) INVENTORY RATING METHOD:	1
(66) INVENTORY RATING:	39.744
(63) OPERATING RATING METHOD:	1
(64) OPERATING RATING:	66.348
(31) DESIGN LOAD:	4
(70) BRIDGE POSTING:	5
(41) STRUCTURE OPEN/POSTED/CLOSED:	A
(66C) TONS POSTED:	
(66D) DATE POSTED/CLOSED:	

Posting Configurations:

Emergency Vehicles:

EV2: LEGAL RF:	2.011
EV3: LEGAL RF:	1.306

2-Axles:

H20-44: LEGAL RF:	2.294
ALTERNATE MILITARY: LEGAL RF:	1.817

3-Axles:

HS20: LEGAL RF:	1.843
AASHTO TYPE 3: LEGAL RF:	2.345

4-Axles:

SU4: LEGAL RF:	1.975
TOLL ROAD LOADING NO. 2: ROUTINE PERMIT RF:	

5-Axles:

AASHTO TYPE 3S2: LEGAL RF:	2.46
SU5: LEGAL RF:	1.886
TOLL ROAD LOADING NO. 1: ROUTINE PERMIT RF:	

6+-Axles:

AASHTO TYPE 3-3: LEGAL RF:	2.887
LANE TYPE: LEGAL RF:	
SU6: LEGAL RF:	1.701
SPECIAL TOLL ROAD TRUCK: ROUTINE PERMIT RF:	
SU7: LEGAL RF:	1.605
MICHIGAN TRAIN TRUCK NO. 5: ROUTINE PERMIT RF:	
MICHIGAN TRAIN TRUCK NO. 8: ROUTINE PERMIT RF:	

Other Configurations:

H20-44: DESIGN RF:	1.373
NRL: LEGAL RF:	1.521
SUPERLOAD-11 AXLES: SPECIAL PERMIT RF:	1.234
SUPERLOAD-13 AXLES: SPECIAL PERMIT RF:	1.411
SUPERLOAD-14 AXLES: SPECIAL PERMIT RF:	0.946
SUPERLOAD-19 AXLES (152.5T): SPECIAL PERMIT RF:	1.309
SUPERLOAD-19 AXLES (240.045T): SPECIAL PERMIT RF:	1.031

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758 - Hydraulics
Indianapolis, Indiana 46204

Eric Holcomb, Governor
Joe McGuinness, Commissioner

March 06, 2023

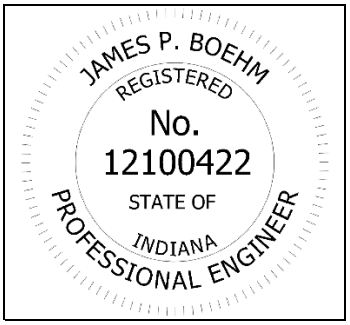
TO: Martha Chernet
INDOT Bridge Engineer, Central Office

FROM: James Boehm, P.E.
INDOT Sr. Hydraulics Engineer

SUBJECT: HYDRAULIC LETTER FOR BRIDGES
New Structure Number: 018-04-10730
Old Structure Number: 018-04-01689 B
Location: SR 18, 6.84 miles east of US 52
Des. #: 2002000
Crossing: Greenwood Ditch
SPMS Type of Work: Bridge Replacement

ANALYSIS: James Boehm, P.E.
INDOT Sr. Hydraulics Engineer

REVIEWER: Bill P Schmidt, P.E.
INDOT Sr. Hydraulics Engineer



This memorandum replaces the original dated 09/16/2021.

Site Parameters:

Drainage Area	= 7.26	sq. mi.
Q_{100} (AEP 1%)	= 1860	cfs
Q_{500} (AEP 0.2%)	= 2510	cfs
Elevation @ Q_{100}	= 713.56	ft.

IDNR CIF Permit Needed (Y/N): N
Legal Drain (Y/N): Y

Existing Conditions:

Existing Bridge: 34 ft Span Concrete Box Beam Bridge

Q_{100} (AEP 1%) Headwater Elevation	= 715.65	ft.
Backwater	= 1.35	ft.
Velocity @ Q_{100} (AEP 1%)	= 8.21	ft./s.
Waterway Opening Below Q_{100} (AEP 1%) Elevation (Str.)	= 178.42	sq. ft.
Road Overflow Waterway Area	= 0.00	sq. ft.
Low Structure Elevation	= 717.23	ft.
Skew	= 0	deg.

Proposed Conditions:

Proposal 1: 34 ft Span Three-Sided Concrete Flat Top

Q_{100} (AEP 1%) Headwater Elevation	= 715.63	ft.
Backwater	= 1.33	ft.
Velocity @ Q_{100} (AEP 1%)	= 7.96	ft./s.
Waterway Opening Below Q_{100} (AEP 1%) Elevation (Str.)	= 195.42	sq. ft.
Road Overflow Waterway Area	= 0.00	sq. ft.
Low Structure Elevation	= 717.23	ft.
Approximate Skew	= 7	deg.
Flowline Elevation	=706.93	ft.

Proposal 1 is a 34 ft span concrete three-sided flat top. This is a replace in kind proposal that includes some channel clearing on the downstream side of the bridge to level the flowline across the structure length. The surveyed flowline of on the day of the survey was greater on the downstream side than the upstream side.

The application of class 1 riprap for scour protection should be used per INDOT standard drawing E723-CCSP for 3-sided structures.

Proposed Conditions:

Proposal 2: 34 ft Span Concrete Slab Top

Q_{100} (AEP 1%) Headwater Elevation	= 715.63	ft.
Backwater	= 1.33	ft.
Velocity @ Q_{100} (AEP 1%)	= 7.96	ft./s.
Waterway Opening Below Q_{100} (AEP 1%) Elevation (Str.)	= 195.42	sq. ft.
Road Overflow Waterway Area	= 0.00	sq. ft.
Low Structure Elevation	= 717.23	ft.
Approximate Skew	= 7	deg.
Flowline Elevation	=706.93	ft.

Proposal 2 is a 34 ft span concrete slab top. This is a replace in kind proposal that includes some channel clearing on the downstream side of the bridge to level the flowline across the structure length. The surveyed flowline of the existing bridge was greater on the downstream side than the upstream side.

The application of class 1 riprap for scour protection should be used per INDOT standard drawing E723-CCSP for 3-sided structures.

Proposed Conditions:

Proposal 3: 62 ft Span Spill Through Bridge

Q_{100} (AEP 1%) Headwater Elevation	= 715.39	ft.
Backwater	= 1.09	ft.
Velocity @ Q_{100} (AEP 1%)	= 6.36	ft./s.
Waterway Opening Below Q_{100} (AEP 1%) Elevation (Str.)	= 220.00	sq. ft.
Road Overflow Waterway Area	= 0.00	sq. ft.
Low Structure Elevation	= 717.23	ft.
Approximate Skew	= 7	deg.
Flowline Elevation	=706.93	ft.

Q_{100} (AEP 1%) Contraction Scour	= 0.00	ft.
Q_{100} (AEP 1%) Total Scour	= 0.00	ft.
Q_{100} (AEP 1%) Low Scour Elevation	= 706.93	ft.
Q_{100} (AEP 1%) Max Velocity	= 7.44	ft /s.
Q_{500} (AEP 0.2%) Elevation	= 716.83	ft.
Q_{500} (AEP 0.2%) Contraction Scour	= 0.00	ft.
Q_{500} (AEP 0.2%) Total Scour	= 0.00	ft.
Q_{500} (AEP 0.2%) Low Scour Elevation	= 706.93	ft.
Q_{500} (AEP 0.2%) Max Velocity	= 8.37	ft./s.

Proposal 3 is a 62 ft span spill through bridge with 2:1 spill slops. This proposal includes some channel clearing on the downstream side of the bridge to level the flowline across the structure length. The surveyed flowline of the existing bridge was greater on the downstream side than the upstream side.

The application of class 1 riprap placed on geotextile on the spill slopes should be used per IDM Fig. 203-3B

As it pertains to this memo, the minimal required waterway opening, and structure span are based on hydraulic geometry that is perpendicular to the flow.

If you have any questions or comments, please contact INDOT Hydraulic Engineering at (317) 232-6439.

JPB
cc: file

INDOT Bridge/Small Structure Bat Inspection Data Sheet (Rev by Cville Dist 5/23/2022)

General Information		
Date of Inspection: 4/19/2023 Time of Inspection: 12:00	Initial Inspection ❑ Follow-up Inspection ☑ Construction ❑	Temp: 63° F Wind: 7 - 10 mph Precip: None
County: Benton		
Inspected by: Brock Ervin, INDOT Crawfordsville DE		Sunrise: 7:02 Sunset: 8:32
GPS Latitude: 40.605985° Longitude: -87.176662° UTM Zone: 16	Des. Number: 2002000 Contract Number: 43453	Anticipated Start Date for Construction: January 2025

Bridge or Culvert	Bridge or Culvert
Stream or Road Crossed: Greenwood Ditch	Station: 18+99
Bridge/Culvert number: 018-04-01689 B	Number of Spans: 1
Type of Structure: ☑ Concrete box beam ❑ Steel beam ❑ Concrete I-beam ❑ Steel girder ❑ Concrete bulb tee beam ❑ Steel pony truss ❑ Concrete arch ❑ Welded steel thru girder ❑ Concrete girder ❑ Concrete box culvert ❑ Concrete slab ❑ Concrete pipe ❑ Multi-plate arch ❑ Corrugated steel pipe ❑ Other (list):	Material: ☑ Concrete ❑ Steel ❑ Other (describe): Shape: ❑ Box Culvert ❑ Pipe ❑ Arch ❑ Slab ❑ Other (describe)
Searched entire structure? If not, why not? Yes	Location of bats or signs of use (w/drawing and photos):
Bats Present? ❑ Seen? ❑ Heard?	
n/a	
In Clusters? Number of clusters: n/a	
Number of bats in largest cluster: n/a	
Approximate total number of bats found: n/a	
Signs of previous bat use? ❑ Guano ❑ Staining None	

If Bats Present
Date and Time Project Supervisor was notified: n/a
Name of Project Supervisor notified: n/a

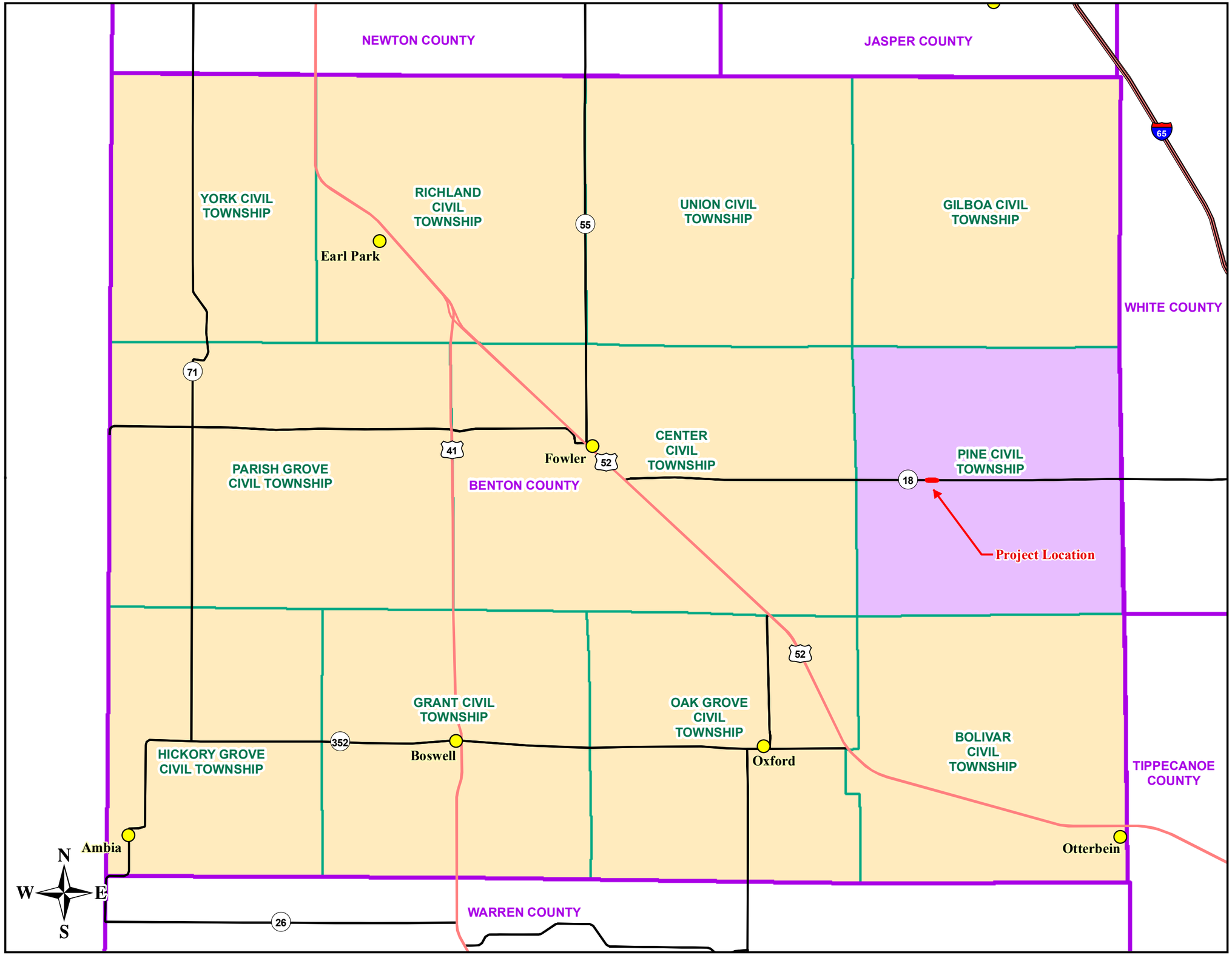
Des. No. 2002000

SR 18 at East Crossing of Greenwood Ditch

Bridge Replacement
6.84 Miles East of US 52
Benton County

EJ Analysis Map

- Project Location
- Cities and Towns
- Civil Townships
- COC - Benton County
- AC - Pine Civil Township
- State Highways
- US Highways
- Interstates
- Toll Roads
- Local Roads



Feet
0 8,000 16,000 24,000 32,000
0 1.5 3 4.5 6 Miles
Absolute Scale - 1:130,000

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

HISPANIC OR LATINO ORIGIN BY RACE

United States® Census Bureau

Note: The table shown may have been modified by user selections. Some information may be missing.

DATA NOTES	
TABLE ID:	B03002
SURVEY/PROGRAM:	American Community Survey
VINTAGE:	2021
DATASET:	ACSDT5Y2021
PRODUCT:	ACS 5-Year Estimates Detailed Tables
UNIVERSE:	Total population
FTP URL:	None
API URL:	https://api.census.gov/data/2021/acs/acs5
USER SELECTIONS	
TABLES	B17001; B03002
GEOS	Benton County, Indiana; Pine township, Benton County, Indiana
EXCLUDED COLUMNS	None
APPLIED FILTERS	None
APPLIED SORTS	None
PIVOT & GROUPING	
PIVOT COLUMNS	None
PIVOT MODE	Off
ROW GROUPS	None
VALUE COLUMNS	None
WEB ADDRESS	https://data.census.gov/table?q=B17001/B03002&g=050XX00US18007_060XX00US1800759886&tid=ACSDT5Y2021.B03002
TABLE NOTES	Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.
	Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section. Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.
	Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates
	Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.
	The Hispanic origin and race codes were updated in 2020. For more information on the Hispanic origin and race code changes, please visit the American Community Survey Technical Documentation website.

	COC: Benton County, Indiana		AC: Pine township, Benton County, Indiana	
Label	**Estimate**	**Margin of Error**	**Estimate**	**Margin of Error**
Percent Minority	**8.66%**		**0.00%**	
125% of COC	**10.82%**		**AC < 125% COC**	
Total:	8,687	*****	114	±57
Not Hispanic or Latino:	8,194	*****	114	±57
White alone	7,935	±37	114	±57
Black or African American alone	59	±31	0	±12
American Indian and Alaska Native alone	0	±17	0	±12
Asian alone	8	±13	0	±12
Native Hawaiian and Other Pacific Islander alone	15	±17	0	±12
Some other race alone	0	±17	0	±12
Two or more races:	177	±46	0	±12
Two races including Some other race	41	±38	0	±12
Two races excluding Some other race, and three or more races	136	±27	0	±12
Hispanic or Latino:	493	*****	0	±12
White alone	343	±68	0	±12
Black or African American alone	0	±17	0	±12
American Indian and Alaska Native alone	4	±5	0	±12
Asian alone	0	±17	0	±12
Native Hawaiian and Other Pacific Islander alone	0	±17	0	±12
Some other race alone	43	±24	0	±12
Two or more races:	103	±64	0	±12
Two races including Some other race	96	±62	0	±12
Two races excluding Some other race, and three or more races	7	±9	0	±12

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

United States® Census Bureau

Note: The table shown may have been modified by user selections. Some information may be missing.

DATA NOTES	
TABLE ID:	B17001
SURVEY/PROGRAM:	American Community Survey
VINTAGE:	2021
DATASET:	ACSDT5Y2021
PRODUCT:	ACS 5-Year Estimates Detailed Tables
UNIVERSE:	Population for whom poverty status is determined
FTP URL:	None
API URL:	https://api.census.gov/data/2021/acs/acs5
USER SELECTIONS	
TABLES	B17001; B03002
GEOS	Benton County, Indiana; Pine township, Benton County, Indiana
EXCLUDED COLUMNS	None
APPLIED FILTERS	None
APPLIED SORTS	None
PIVOT & GROUPING	
PIVOT COLUMNS	None
PIVOT MODE	Off
ROW GROUPS	None
VALUE COLUMNS	None
WEB ADDRESS	https://data.census.gov/table?q=B17001/B03002&g=050XX00US18007_060XX00US1800759886&tid=ACSDT5Y2021.B17001
TABLE NOTES	Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.
	Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section. Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.
	Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates
	Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.
	The 2017-2021 American Community Survey (ACS) data generally reflect the March 2020 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.
	Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

	Benton County, Indiana		Pine township, Benton County, Indiana	
Label	**Estimate**	**Margin of Error**	**Estimate**	**Margin of Error**
Percent Low-Income	**16.71%**		**7.02%**	
125% of COC	**20.89%**		**AC < 125% COC**	
Total:	8,564	±93	114	±57
Income in the past 12 months below poverty level:	1,431	±228	8	±12
Male:	524	±116	8	±12
Under 5 years	74	±27	0	±12
5 years	7	±9	0	±12
6 to 11 years	74	±37	0	±12
12 to 14 years	7	±10	0	±12
15 years	3	±5	0	±12
16 and 17 years	0	±17	0	±12
18 to 24 years	128	±61	0	±12
25 to 34 years	61	±48	0	±12
35 to 44 years	45	±29	0	±12
45 to 54 years	33	±25	0	±12
55 to 64 years	57	±33	0	±12
65 to 74 years	19	±15	8	±12
75 years and over	16	±15	0	±12
Female:	907	±165	0	±12
Under 5 years	105	±34	0	±12
5 years	39	±22	0	±12
6 to 11 years	97	±47	0	±12
12 to 14 years	47	±32	0	±12
15 years	21	±26	0	±12
16 and 17 years	39	±31	0	±12
18 to 24 years	61	±34	0	±12
25 to 34 years	159	±50	0	±12
35 to 44 years	95	±38	0	±12
45 to 54 years	75	±50	0	±12
55 to 64 years	91	±49	0	±12
65 to 74 years	34	±25	0	±12
75 years and over	44	±32	0	±12
Income in the past 12 months at or above poverty level:	7,133	±247	106	±61
Male:	3,753	±118	40	±27
Under 5 years	213	±31	0	±12
5 years	76	±48	0	±12
6 to 11 years	271	±56	0	±12
12 to 14 years	168	±61	0	±12
15 years	76	±35	0	±12
16 and 17 years	119	±38	0	±12
18 to 24 years	221	±58	0	±12
25 to 34 years	414	±50	0	±12
35 to 44 years	463	±29	12	±16
45 to 54 years	534	±27	0	±12
55 to 64 years	562	±37	11	±14
65 to 74 years	404	±19	9	±12
75 years and over	232	±21	8	±13
Female:	3,380	±191	66	±39
Under 5 years	175	±37	0	±12
5 years	20	±21	0	±12
6 to 11 years	237	±56	19	±19
12 to 14 years	106	±33	0	±12
15 years	60	±31	0	±12
16 and 17 years	91	±33	0	±12

	Benton County, Indiana		Pine township, Benton County, Indiana	
Label	**Estimate**	**Margin of Error**	**Estimate**	**Margin of Error**
18 to 24 years	240	±32	0	±12
25 to 34 years	305	±50	0	±12
35 to 44 years	462	±49	11	±16
45 to 54 years	445	±51	13	±14
55 to 64 years	536	±53	6	±9
65 to 74 years	379	±28	8	±11
75 years and over	324	±36	9	±13