

FHWA-Indiana Environmental Document
CATEGORICAL EXCLUSION / ENVIRONMENTAL ASSESSMENT FORM
GENERAL PROJECT INFORMATION

Road No./County:	State Road (SR) 237/ Crawford County
Designation Number(s):	Des. No. 1900294
Project Description/Termini:	SR 237 Slide Correction Project, from 0.32 to 0.38 mile north of the SR 62/SR 66 junction


X	Categorical Exclusion, Level 2 – Required Signatories: INDOT DE and/or INDOT ESD
	Categorical Exclusion, Level 3 – Required Signatories: INDOT ESD
	Categorical Exclusion, Level 4 – Required Signatories: INDOT ESD and FHWA
	Environmental Assessment (EA) – Required Signatories: INDOT ESD and FHWA
	Additional Investigation (AI) – The proposed action included a design change from the original approved environmental document. Required Signatories must include the appropriate environmental approval authority

Approval

_____	_____
INDOT DE Signature and Date	INDOT ESD Signature and Date

FHWA Signature and Date

Release for Public Involvement

	 _____ INDOT DE Initials and Date	9/27/2023 _____ INDOT ESD Initials and Date
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Certification of Public Involvement

INDOT Consultant Services Signature and Date

INDOT DE/ESD Reviewer Signature and Date: _____

Name and Organization of CE/EA Preparer: Samantha Beaupre/ Lochmueller Group, Inc.

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Note: Refer to the most current INDOT CE Manual, guidance language, and other ESD resources for further guidance regarding any section of this form.

Part I – Public Involvement

Every Federal action requires some level of public involvement, providing for early and continuous opportunities throughout the project development process. **The level of public involvement should be commensurate with the proposed action.**

Does the project have a historic bridge processed under the Historic Bridges PA*?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If No, then: Opportunity for a Public Hearing Required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*A public hearing is required for all historic bridges processed under the Historic Bridges Programmatic Agreement between INDOT, FHWA, SHPO, and the ACHP.

Discuss what public involvement activities (legal notices, letters to affected property owners and residents (i.e. notice of entry), meetings, special purpose meetings, newspaper articles, etc.) have occurred for this project.

Notice of Entry letters were mailed to potentially affected property owners near the project area on August 5, 2021 notifying them about the project and that individuals responsible for land surveying and field activities may be seen in the area. A sample copy of the Notice of Entry letter is included in Appendix G, G1.

The project will meet the minimum requirements described in the current *Indiana Department of Transportation (INDOT) Project Development Public Involvement Procedures Manual* which requires the project sponsor to offer the public an opportunity to submit comments and/or request a public hearing. Therefore, a legal notice will appear in a local publication contingent upon the release of this document for public involvement. This document will be revised after the public involvement requirements are fulfilled.

Public Controversy on Environmental Grounds

Discuss public controversy concerning community and/or natural resource impacts, including what is being done during the project to minimize impacts.

At this time, there is no substantial public controversy concerning impacts to the community or to natural resources.

Part II - General Project Identification, Description, and Design Information

Sponsor of the Project: INDOT-Vincennes District INDOT District: Vincennes

Local Name of the Facility: SR 237

Funding Source (mark all that apply): Federal State Local Other*

*If other is selected, please identify the funding source: _____

PURPOSE AND NEED:

The need should describe the specific transportation problem or deficiency that the project will address. The purpose should describe the goal or objective of the project. The solution to the traffic problem should NOT be discussed in this section.

Need:

Des. No. 1900294 is located on SR 237, approximately 0.33 mile north of the SR 62/SR 66 junction in Crawford County, Indiana. The need for this project is due to a slow-moving slide that is affecting the northbound travel lane on this section of SR 237. According to the *Engineering Assessment Report* dated June 17, 2022, the slide is creating rough pavement

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conditions that have required maintenance repairs every few years. The slope movement observed is likely due to a combination of the high-plasticity soils (which typically correspond to low drained shear strengths), the steep slopes, the shale seams within the primarily limestone bedrock unit, and possibly the groundwater flow through the bedrock in the area. The slide presents a risk for accelerated movement from future and more frequent maintenance activities.

Purpose:

The purpose of the project is to repair the slide, to prevent further damage, and to prevent the roadway from failing along this section of SR 237.

PROJECT DESCRIPTION (PREFERRED ALTERNATIVE):

County: Crawford

Municipality: N/A

Limits of Proposed Work: 0.32 to 0.38 mile North of the SR 62/SR 66 junction

Total Work Length: 0.06 Mile(s)

Total Work Area: 0.83 Acre(s)

Is an Interstate Access Document (IAD)¹ required?
 If yes, when did the FHWA provide a Determination of Engineering and Operational Acceptability?

Yes ¹	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
Date: <input style="width: 100%;" type="text"/>	

¹If an IAD is required; a copy of the approved CE/EA document must be submitted to the FHWA with a request for final approval of the IAD.

Describe location of project including township, range, city, county, roads, etc. Existing conditions should include current conditions, current deficiencies, roadway description, surrounding features, etc. Preferred alternative should include the scope of work, anticipated impacts, and how the project will meet the Purpose and Need. Logical termini and independent utility also need discussed.

The INDOT and the Federal Highway Administration (FHWA) intend to proceed with a slide correction project along SR 237 in Crawford County, Indiana (Des. No. 1900294).

Location:

The proposed project is located on SR 237, approximately 0.33 mile north of the SR 62/SR 66 junction in Crawford County. Specifically, the project is located in Section 25, Township 3 South, Range 1 West in Union Township as depicted on the Beechwood U.S. Geological Survey 1:24,000 scale quadrangle map (Appendix B, B2). Adjacent land use consists of mature forests and scattered residences (Appendix B, B3).

Existing Conditions:

Within the project area, SR 237 is functionally classified as a major collector. The typical cross section consists of two 11-foot travel lanes (one lane in each direction). No shoulders, median, or guardrail are present. The posted speed limit of SR 237 in the project area is 45 mph. All pavement around this location is hot mix asphalt (HMA) with areas of previous patching, and some significant distress with cracking due to slope movements. The slow-moving slide is affecting the northbound travel lane on this section of SR 237. According to the Engineering Assessment Report dated June 17, 2022, the slide is creating rough pavement conditions that have required maintenance repairs every few years.

An existing 15-inch diameter, 23-foot long driveway culvert is located on the west side of SR 237.

Preferred Alternative:

The proposed project will correct the slide with the use of a reinforced concrete cantilever retaining wall. Pavement work is anticipated to consist of a full replacement behind the proposed wall in the northbound lane, and a mill and overlay along the southbound lane and transition areas. A four-foot HMA widening along the northbound lane to accommodate the construction of approximately 225 linear feet of guardrail is also proposed within the limits of the retaining wall. The widened shoulder will taper back to the existing road on either side of the proposed retaining wall. Approximately 0.1 acre

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of riprap will be placed adjacent to the retaining wall to the southeast. No work is anticipated outside the existing right-of-way along the southbound lane. An existing driveway and 15-inch diameter, 23-foot long driveway culvert located on the west side of SR 237 will be reconstructed. The project plans are located in Appendix B, B12 to B23.

The project will require approximately 0.54 acre of permanent right-of-way (ROW), 0.02 acre of temporary ROW, and 0.15 acre of reacquisition. Refer to the *Right of Way* section for more detail.

The project is not anticipated to impact any waterways or wetlands. Approximately 0.27 acre of tree clearing is anticipated to be required on the southeast side of SR 237 for construction access. The construction limits have been minimized to the greatest extent possible in order to fulfill the purpose and need of the project. Avoidance of these impacts is not practicable to meet the purpose and need of the project. No mitigation is anticipated.

The proposed maintenance of traffic (MOT) will involve closure of SR 237 with a detour. The detour will utilize SR 62, SR 37, and Interstate 64 (I-64). Refer to the *Maintenance of Traffic (MOT) During Construction* section for more detail.

The preferred alternative will meet the purpose and need by repairing the slide, preventing further damage, and preventing the roadway from failing along this section of SR 237.

Logical Termini/Independent Utility:

The termini of the project occur along SR 237, approximately 0.32 to 0.38 mile north of the SR 62/SR 66 junction (0.06 mile in length). The termini of the project provide the logical beginning and end points and encompass only that area necessary to complete the slide correction. The project is independent of any other action and able to be constructed without relying on the completion of any other project.

OTHER ALTERNATIVES CONSIDERED:

Provide a header for each alternative. Describe all discarded alternatives, including the No Build Alternative. Explain why each discarded alternative was not selected. Make sure to state how each alternative meets or does not meet the Purpose and Need and why.

No Build Alternative:

This alternative would involve no improvements to the roadway or the existing slopes. This alternative would result in continued deterioration of the roadway and pavement, resulting in more required maintenance and potential traffic safety issues that require roadway closures. While this alternative eliminates immediate costs and environmental impacts, it would not meet the purpose and need of the project. Therefore, this alternative was dismissed from further consideration.

Soil/Rock Nails Alternative:

This alternative would involve drilling holes at a slight downward inclination into the original ground or existing embankment. Reinforcing bars would then be placed and grouted into the drilled holes. The project area has issues with water flow through the face of the embankment. Therefore, soil nails could have issues with a buildup of water pressure. Additionally, the presence of possible shallow rock would result in differing soil conditions and problems with the insertion of soil nails. Due to these issues, this alternative would not prevent further deterioration and would not meet the project purpose and need. Therefore, this alternative was dismissed from further consideration.

Cantilevered Drilled Shafts Alternative: This alternative would consist of construction of drilled vertical reinforced concrete shafts to construct a retaining wall to support the roadway. Due to the variability in depth and type of rock, construction of this alternative would be difficult. The difficulty in constructing this alternative would result in not repairing the slide and not meeting the purpose and need. Therefore, this alternative was dismissed from further consideration.

Piled Plate Alternative: This alternative would consist of construction of a matrix of shallow plate piles to reinforce an existing slope. Due to the variability in depth and type of rock, construction of this alternative would be difficult. The difficulty in constructing this alternative would result in not repairing the slide and not meeting the purpose and need. Therefore, this alternative was dismissed from further consideration.

Roadway Realignment Alternative:

This alternative would include laying back the embankment on the downslope (east) side of the roadway to approximately

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3:1 and consequently realigning the roadway up to approximately 10-feet to the west of its current location. This would shift the pavement beyond the existing slide area and, as a product of re-grading the east embankment slope to a 3:1, offers a benefit of removing a portion of the sliding mass on the east side of the road. This alternative would meet the project purpose and need by repairing the slide, preventing further damage, and preventing the roadway from failing along this section of SR 237. All known utilities in this area are located on the west side of the road. Realigning the roadway would cause utility conflicts and relocations would be required. Therefore, this alternative was dismissed from further consideration.

No other alternatives were considered for this project.

The No Build Alternative is not feasible, prudent or practicable because (Mark all that apply)

It would not correct existing capacity deficiencies;

It would not correct existing safety hazards;

It would not correct the existing roadway geometric deficiencies;

It would not correct existing deteriorated conditions and maintenance problems; or

It would result in serious impacts to the motoring public and general welfare of the economy.

Other (Describe):

X

ROADWAY CHARACTER:

If the proposed action includes multiple roadways, complete and duplicate for each roadway.

Name of Roadway	<u>SR 237</u>			
Functional Classification:	<u>Major Collector</u>			
Current ADT:	<u>703</u>	VPD (2022)	Design Year ADT:	<u>727</u>
				VPD (2044)
Design Hour Volume (DHV):	<u>76</u>	Truck Percentage (%)	<u>5.01</u>	
Designed Speed (mph):	<u>45</u>	Legal Speed (mph):	<u>45</u>	

	Existing		Proposed	
Number of Lanes:	2		2	
Type of Lanes:	through		through	
Pavement Width:	22	ft.	22	ft.
Shoulder Width:	N/A	ft.	2-4	ft.
Median Width:	N/A	ft.	N/A	ft.
Sidewalk Width:	N/A	ft.	N/A	ft.

Setting:	<input type="checkbox"/> Urban	<input type="checkbox"/> Suburban	<input checked="" type="checkbox"/> Rural
Topography:	<input type="checkbox"/> Level	<input checked="" type="checkbox"/> Rolling	<input type="checkbox"/> Hilly

BRIDGES AND/OR SMALL STRUCTURE(S):

If the proposed action includes multiple structures, complete and duplicate for each bridge and/or small structure. Include both existing and proposed bridge(s) and/or small structure(s) in this section.

Structure/NBI Number(s): N/A Sufficiency Rating: N/A
(Rating, Source of Information)

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	Existing		Proposed	
Bridge/Structure Type:	15-inch driveway CMP		15-inch driveway CMP	
Number of Spans:	1		1	
Weight Restrictions:	N/A	ton	N/A	ton
Height Restrictions:	N/A	ft.	N/A	ft.
Curb to Curb Width:	N/A	ft.	N/A	ft.
Outside to Outside Width:	23	ft.	23	ft.
Shoulder Width:	N/A	ft.	N/A	ft.

Describe impacts and work involving bridge(s), culvert(s), pipe(s), and small structure(s). Provide details for small structure(s): structure number, type, size (length and dia.), location and impacts to water. Use a table if the number of small structures becomes large. If the table exceeds a complete page, put it in the appendix and summarize the information below with a citation to the table.

An existing driveway and 15-inch diameter, 23-foot long driveway culvert located on the west side of SR 237 will be reconstructed. The culvert is not historic and is not part of the National Bridge Inventory (NBI). An additional 15-inch diameter culvert replacement is noted on the plans. This replacement will be constructed under Des. No. 1900291 and is discussed in a separate environmental document.

MAINTENANCE OF TRAFFIC (MOT) DURING CONSTRUCTION:

	Yes	No
Is a temporary bridge proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is a temporary roadway proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project involve the use of a detour or require a ramp closure? (describe below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for access by local traffic and so posted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made for through-traffic dependent businesses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Provisions will be made to accommodate any local special events or festivals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Will the proposed MOT substantially change the environmental consequences of the action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there substantial controversy associated with the proposed method for MOT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will the project require a sidewalk, curb ramp, and/or bicycle lane closure? (describe below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provisions will be made for access by pedestrians and/or bicyclist and so posted (describe below).	<input type="checkbox"/>	<input type="checkbox"/>

Discuss closures, detours, and/or facilities (if any) that will be provided for maintenance of traffic. Any known impacts from these temporary measures should be quantified to the extent possible, particularly with respect to properties such as Section 4(f) resources and wetlands. Discuss any pedestrian/bicycle closures. Any local concerns about access and traffic flow should be detailed as well.

The MOT for the project will require the closure of SR 237 with an official detour (Appendix B, B17). The detour will utilize SR 62, SR 37, and I-64. The detour is approximately 17 miles long and takes approximately 20 minutes. The MOT will be implemented per the *Manual on Uniform Traffic Control Devices (MUTCD)* guidelines. Construction is anticipated to begin in Spring 2024. Access to adjacent properties will be maintained throughout project construction.

The closure will pose a temporary inconvenience to traveling motorists (including school buses and emergency services); however, no significant delays are anticipated, and all inconveniences and delays will cease upon project completion.

ESTIMATED PROJECT COST AND SCHEDULE:

Engineering: \$ 127,000 (2024) Right-of-Way: \$ 51,000 (2023) Construction: \$ 11,469,000 (2024)

Anticipated Start Date of Construction: Spring/Summer 2024

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RIGHT OF WAY:

Land Use Impacts	Amount (acres)		
	Permanent	Temporary	Reacquisition
Residential	0	0.02	0
Commercial	0	0	0
Agricultural	0	0	0
Forest	0.54	0	0
Wetlands	0	0	0
Other: Maintained Roadside Vegetation	0	0	0.15
Other:	0	0	0
TOTAL	0.54	0.02	0.15

Describe both Permanent and Temporary right-of-way and describe their current use. Typical and Maximum right-of-way widths (existing and proposed) should also be discussed. Any advance acquisition, reacquisition or easements, either known or suspected, and their impacts on the environmental analysis should be discussed.

Within the project area, the typical existing ROW along SR 237 is assumed to be the edge of pavement. The maximum ROW width is 11 feet northwest and southeast of the roadway centerline. However, records in Crawford County do not clearly establish the existing ROW. Therefore, there is ROW reacquisition associated with this project. The land use of the existing ROW is roadway.

The project requires approximately 0.54 acre of permanent ROW from forested land on the east side of SR 237. The project also requires approximately 0.02 acre of temporary ROW for driveway construction and culvert replacement on the west side of SR 237. The reacquisition will include approximately 0.15 acre of ROW along the east side of SR 237, which consists of maintained roadside vegetation (Appendix B, B3).

The new typical ROW width along SR 237 will extend 25 feet northwest and 13 to 95 feet southeast of the roadway centerline (Appendix B, B18).

If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately.

Part III – Identification and Evaluation of Impacts of the Proposed Action

SECTION A - EARLY COORDINATION:

List the date(s) coordination was sent and all resource agencies that were contacted as a part of the development of this Environmental Study. Also, include the date of their response or indicate that no response was received.

Early coordination letters were sent on December 29, 2022 (Appendix C, C1 to C3).

<u>Agency</u>	<u>Date Sent</u>	<u>Date Response Received</u>	<u>Appendix</u>
Federal Highway Administration - Indiana Division	December 29, 2022	No response received	N/A
Indiana Department of Environmental Management (IDEM), Groundwater	December 29, 2022	No response received	N/A
National Park Service	December 29, 2022	No response received	N/A

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Indiana Geological and Water Survey	December 29, 2022	December 29, 2022	Appendix C, C4 to C5
Indiana Department of Natural Resources (IDNR), Division of Fish and Wildlife	December 29, 2022	January 26, 2023	Appendix C, C8 to C9
U.S. Housing and Urban Development	December 29, 2022	No response received	N/A
INDOT, Vincennes District	December 29, 2022	No response received	N/A
Hoosier National Forest, U.S. Forest Service	December 29, 2022	January 3, 2023	Appendix C, C7
Natural Resources Conservation Service, Indianapolis Office	December 29, 2022	January 3, 2023	Appendix C, C6
Crawford County Board of Commissioners	December 29, 2022	No response received	N/A
Crawford County Surveyor's Office	December 29, 2022	No response received	N/A
Crawford County Highway Department	December 29, 2022	No response received	N/A
Crawford County Council	December 29, 2022	No response received	N/A
Crawford County Sheriff's Department	December 29, 2022	No response received	N/A
Crawford County Emergency Management Agency	December 29, 2022	No response received	N/A
Crawford County Community Schools	December 29, 2022	No response received	N/A
Leavenworth Fire Department	December 29, 2022	No response received	N/A

ROW increased after early coordination. Resource impacts did not significantly increase; therefore, additional coordination did not occur. All applicable recommendations are included in the *Environmental Commitments* section of this Categorical Exclusion (CE) document.

SECTION B – ECOLOGICAL RESOURCES:

Streams, Rivers, Watercourses & Other Jurisdictional Features

- Federal Wild and Scenic Rivers
- State Natural, Scenic or Recreational Rivers
- Nationwide Rivers Inventory (NRI) listed
- Outstanding Rivers List for Indiana
- Navigable Waterways

Presence

Impacts

Yes	No

Total stream(s) in project area: 0 Linear feet Total impacted stream(s): 0 Linear feet

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Stream Name	Classification	Total Size in Project Area (linear feet)	Impacted linear feet	Comments (i.e. location, flow direction, likely Water of the US, appendix reference)
N/A	N/A	N/A	N/A	N/A

Describe all streams, rivers, watercourses and other jurisdictional features adjacent or within the project area. Include whether or not impacts (both permanent and temporary) will occur to the features identified. Include if the streams or rivers are listed on any federal or state lists for Indiana. Include if features are likely subject to federal or state jurisdiction. Discuss measures to avoid, minimize, and mitigate if impacts will occur.

Based on the desktop review, the aerial map of the project area (Appendix B, B3), and the Red Flag Investigation (RFI) report (Appendix E, E1 to E9), there are six streams, rivers, watercourses or other jurisdictional features within the 0.5-mile search radius. There is one stream adjacent to the project area. That number was updated to no streams within or adjacent to the project area by the site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group. Therefore, no impacts are expected.

Open Water Feature(s)	<u>Presence</u>	<u>Impacts</u>	
		Yes	No
Reservoirs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Farm Ponds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Retention/Detention Basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm Water Management Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Describe all open water feature(s) identified adjacent or within the project area. Include whether or not impacts (both permanent and temporary) will occur to the features identified. Include if features are likely subject to federal or state jurisdiction. Discuss measures to avoid, minimize, and mitigate if impacts will occur.

Based on the desktop review, the aerial map of the project area (Appendix B, B3), and the RFI report (Appendix E, E1 to E9), there are thirteen open water features within the 0.5-mile search radius. There are no open water features within or adjacent to the project area, which was confirmed by the site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group. Therefore, no impacts are expected.

Wetlands	<u>Presence</u>	<u>Impacts</u>	
		Yes	No
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Total wetland area: 0 Acre(s) Total wetland area impacted: 0 Acre(s)

(If a determination has not been made for non-isolated/isolated wetlands, fill in the total wetland area impacted above.)

Wetland No.	Classification	Total Size (Acres)	Impacted Acres	Comments (i.e. location, likely Water of the US, appendix reference)
N/A	N/A	N/A	N/A	N/A

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Wetlands (Mark all that apply)

Wetland Determination
 Wetland Delineation
 USACE Isolated Waters Determination

Documentation

X

ESD Approval Dates

November 7, 2022

Improvements that will not result in any wetland impacts are not practicable because such avoidance would result in (Mark all that apply and explain):

- Substantial adverse impacts to adjacent homes, business or other improved properties;
- Substantially increased project costs;
- Unique engineering, traffic, maintenance, or safety problems;
- Substantial adverse social, economic, or environmental impacts, or
- The project not meeting the identified needs.

Describe all wetlands identified adjacent or within the project area. Include whether or not impacts (both permanent and temporary) will occur to the features identified. Include if features are likely subject to federal or state jurisdiction. Discuss measures to avoid, minimize, and mitigate if impacts will occur.

Based on the desktop review, the aerial map of the project area (Appendix B, B3), and the RFI report (Appendix E, E1 to E9), there are sixteen wetlands within the 0.5-mile search radius. There are no wetlands within or adjacent to the project area, which was confirmed by the site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group. Therefore, no impacts are expected.

Terrestrial Habitat

Presence

X

Impacts

Yes	NO
X	

Total terrestrial habitat in project area: 0.37 Acre(s) Total tree clearing: 0.27 Acre(s)

Describe types of terrestrial habitat (i.e. forested, grassland, farmland, lawn, etc) adjacent or within the project area. Include whether or not impacts will occur to habitat identified. Include total terrestrial habitat impacted and total tree clearing that will occur. Discuss measure to avoid, minimize, and mitigate if impacts will occur.

Based on a desktop review, site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group, and the aerial map of the project area (Appendix B, B3), there is maintained roadside vegetation and forested vegetation within the project area. The maintained roadside vegetation primarily consists of tall redbud (*Tridens flavus*), Japanese bristle grass (*Setaria faberi*), and hairy crab grass (*Digitaria sanguinalis*). The forested road embankment primarily consists of white oak (*Quercus alba*), sugar maple (*Acer saccharum*), Sycamore (*Platanus occidentalis*), Christmas fern (*Polystichum acrostichoides*), white snake root (*Ageratina altissima*), and black cohosh (*Actaea racemosa*). A total of 0.37 acre of terrestrial habitat will be disturbed. Of that total, approximately 0.27 acre of tree clearing is required on the east side of SR 237 for construction access. Construction limits were minimized to only include the area necessary to correct the slide and maintain the roadway. Avoidance alternatives would not be practical because they would not allow the project to meet its purpose and need or they would increase overall impacts. Impacts to terrestrial habitat have been minimized to the greatest extent possible, while still meeting the project purpose and need. Mitigation is not anticipated.

The Indiana Department of Natural Resources, Division of Fish and Wildlife (IDNR DFW) responded on January 26, 2023, with recommendations regarding minimizing impacts to the terrestrial environment, such as implementation of sediment and erosion control measures, reseeding disturbed areas, potential mitigation requirements, and tree clearing time of year restrictions (Appendix C, C8 to C9). All applicable recommendations are included in the *Environmental Commitments* section of this CE document.

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Protected Species

Federally Listed Bats

Information for Planning and Consultation (IPaC) determination key completed
 Section 7 informal consultation completed (IPaC cannot be completed)
 Section 7 formal consultation Biological Assessment (BA) required

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Determination Received for Listed Bats from USFWS: NE NLAA LAA

Other Species not included in IPaC

Additional federal species found in project area (based on IPaC species list)
 State species (not bird) found in project area (based upon consultation with IDNR)

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

Migratory Birds

Known usage or presence of birds (i.e. nests)
 State bird species based upon coordination with IDNR

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discuss IDNR coordination and species identified. Describe USFWS Section 7 consultation and determination received for Indiana bat and northern long-eared bat impacts. Discuss if other federally listed species were identified. If so, include consultation that has occurred and the determination that was received. Discuss if migratory birds have been observed and any impacts.

Based on a desktop review and the RFI report (Appendix E, E1 to E9), completed by Lochmueller Group on March 31, 2022, the IDNR Crawford County Endangered, Threatened and Rare (ETR) Species List has been checked. According to the IDNR-DFW early coordination response letter dated January 26, 2023 (Appendix C, C8 to C9), the Natural Heritage Program's Database has been checked and the Woodland box turtle (*Terrapene carolina carolina*), a state species of special concern, has been documented within 0.5 mile northeast of the project area. The IDNR DFW does not foresee any impacts to the Woodland box turtle as a result of this project. An INDOT 0.5-mile bat review occurred on September 9, 2021. The INDOT review did not indicate the presence of endangered bat species in or within 0.5 mile of the project area.

Indiana Bat and Northern Long-Eared Bat

Project information was submitted through the USFWS's Information for Planning and Consultation (IPaC) portal, and an official species list was generated (Appendix C, C10 to C26). The project is within range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally endangered northern long-eared bat (NLEB) (*Myotis septentrionalis*). Other species were generated in the IPaC species list along with the Indiana bat and NLEB. Refer to paragraph below.

The project qualifies for the *Range-wide Programmatic Informal Consultation for the Indiana bat and northern long-eared bat (NLEB)*, dated May 2016 (revised February 2018), between FHWA, Federal Railroad Administration (FRA), Federal Transit Administration (FTA), and USFWS. An effect determination key was completed on April 18, 2023, and based on the responses provided, the project was found to "Not Likely to Adversely Affect" the Indiana bat and/or the NLEB (Appendix C, C27 to C38). INDOT reviewed and verified the effect finding on April 18, 2023, and requested USFWS's review of the finding. No response was received from USFWS within the 14-day review period; therefore, it was concluded they concur with the finding. Avoidance and Minimization Measures (AMMs) include ensuring all operators, employees, and contractors are aware of all FHWA/FRA/FTA environmental commitments (General AMM 1); using best management practices (BMPs) to avoid impacts to possible hibernacula and maintaining a 300 foot buffer to separate fueling areas from karst features (Hibernacula AMM 1); modifying the project to avoid tree removal (Tree Removal AMM 1); applying time of year restrictions to when trees can be removed (Tree Removal AMM 2); ensuring tree removal is limited to that specified in the project plans (Tree Removal AMM 3); not removing documented Indiana bat or NLEB roosts or trees within 0.25 mile of roosts (Tree Removal AMM 4); and directing temporary lighting away from suitable habitat during the active season (Lighting AMM 1). Tree Removal AMMs and/or commitments are included as firm commitments in the *Environmental Commitments* section of this document.

In the concurrence verification letter, the existing 15-inch diameter, 23-foot long driveway culvert was discussed, but the work being done to the culvert was not included. The culvert will be reconstructed. A culvert inspection occurred on August 16, 2023 and no evidence of birds or bats using the structure was observed (Appendix C, C42). USFWS

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Bridge/Structure Assessments are only valid for two years. If construction will begin after August 16, 2025, an inspection of the structure by a qualified individual, must be performed. Inspection of the structure should check for presence of bats/bat indicators and/or presence of birds. The results of the inspection must indicate no signs of bats or birds. If signs of bats or birds are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately. This firm commitment is included in the Environmental Commitments section of this document.

Other Protected Species

The official species list generated from IPaC indicated four other species present within the project area: Gray Bat (*Myotis grisescens*), Tricolored Bat (*Perimyotis subflavus*), the whooping crane (*Grus americana*), and the monarch butterfly (*Danaus plexippus*). The tricolored bat is listed as proposed endangered. The whooping crane is listed as endangered wherever found, except where listed as an experimental population according to the Environmental Conservation Online System (<https://ecos.fws.gov/ecp/species/758>). The whooping crane is listed as an experimental population in this location. Therefore, the species was not considered as part of this project. The monarch butterfly is identified as a candidate species, which is not yet listed or proposed for listing. The gray bat is present within the project area and is listed as an endangered species. However, the project qualifies for the most current INDOT/USFWS agreement. All applicable recommendations are included in the *Environmental Commitments* section of this CE document. No further coordination with the USFWS is needed regarding the gray bat.

Additionally, Indiana Bat (*Myotis sodalis*) Critical Habitat was identified within the project area. An effect determination was completed on August 3, 2023 and the project was found to “Not Likely to Adversely Affect” the Indiana Bat Critical Habitat. INDOT reviewed and verified the effect finding on August 3, 2023, and requested USFWS’s review of the finding. USFWS reviewed and verified the finding on August 7, 2023 (Appendix C, C39 to C41). No further coordination is needed with USFWS.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act, as amended. If new information on endangered species at the site becomes available, or if project plans are changed, USFWS will be contacted for consultation.

Geological and Mineral Resources

- Project located within the Indiana Karst Region
- Karst features identified within or adjacent to the project area
- Oil/gas or exploration/abandoned wells identified in the project area

Yes	No
X	
	X
	X

Date Karst Evaluation reviewed by INDOT EWPO (if applicable): _____

Discuss if project is located in the Indiana Karst Region and if any karst features have been identified in the project area (from RFI). Discuss response received from IGWS coordination. Discuss if any mines, oil/gas, or exploration/abandoned wells were identified and if impacts will occur. Include discussion of karst study/report was completed and results. (Karst investigation must comply with the current Protection of Karst Features during Planning and Construction guidance and coordinated and reviewed by INDOT EWPO)

Based on a desktop review and the Indiana Karst Region map, the project is located in the designated Indiana Karst Region as outlined in the most current *Protection of Karst Features during Project Development and Construction*. According to the topographic map of the project area (Appendix B, B2), and site visits on September 29, 2021 and September 27, 2022, there are no karst features identified within or adjacent to the project area. According to the RFI report (Appendix E, E1 to E9), one (1) cave entrance density polygon is located within the 0.5 mile search radius. The cave entrance density polygon is located approximately 0.25 mile south of the project area. A karst report and coordination with INDOT ESD Ecology and Waterway Permitting was recommended in the RFI. No karst features were identified during the site visits; therefore, no coordination occurred and no karst report was prepared. In the early coordination response dated December 29, 2022, the Indiana Geological and Water Survey (IGWS) did indicate that potential karst features exist in the project area (Appendix C, C4 to C5) The response also indicated a moderate potential of bedrock resources, no sand and gravel resources, and no mineral resource extraction sites documented in the area. Response from IGWS has been communicated to the designer on May 18, 2023. No impacts are expected.

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SECTION C – OTHER RESOURCES

Drinking Water Resources

- Wellhead Protection Area(s)
- Source Water Protection Area(s)
- Water Well(s)
- Urbanized Area Boundary
- Public Water System(s)

Presence

X

Impacts

Yes	No
	X

- Is the project located in the St. Joseph Sole Source Aquifer (SSA):
- If Yes, is the FHWA/EPA SSA MOU Applicable?
- If Yes, is a Groundwater Assessment Required?

Yes	No
	X

Check the appropriate boxes and discuss each topic below. Provide details about impacts and summarize resource-specific coordination responses and any mitigation commitments. Reference responses in the Appendix.

Sole Source Aquifer

The project is located in Crawford County, which is not located within the area of the St. Joseph Sole Source Aquifer, the only legally designated sole source aquifer in the state of Indiana. Therefore, the FHWA/Environmental Protection Agency (EPA)/INDOT Sole Source Aquifer Memorandum of Understanding (MOU) is not applicable to this project, a detailed groundwater assessment is not needed, and no impacts are expected.

Wellhead Protection Area and Source Water

The Indiana Department of Environmental Management's Wellhead Proximity Determinator website (<http://www.in.gov/idem/cleanwater/pages/wellhead/>) was accessed on April 6, 2023 by Lochmueller Group. This project is not located within a Wellhead Protection Area or Source Water Area. No impacts are expected.

Water Wells

The IDNR Water Well Record Database website (<https://www.in.gov/dnr/water/3595.htm>) was accessed on July 24, 2023 by Lochmueller Group. No wells are located near this project. Therefore, no impacts are expected.

Urban Area Boundary

Based on a desktop review of the INDOT MS4 mapper (<https://entapps.indot.in.gov/MS4/>) by Lochmueller Group on May 17, 2023, this project is not located in an Urban Area Boundary. No impacts are expected.

Public Water System

Based on a desktop review, site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group, the aerial map of the project area (Appendix B, B3), and the design plans (Appendix B, B12 to B23), this project is located where there is a public water system. The public water system will not be affected because the water line is outside of the construction limits. Therefore, no impacts are expected.

Floodplains

- Project located within a regulated floodplain
- Longitudinal encroachment
- Transverse encroachment
- Homes located in floodplain within 1000' up/downstream from project

Presence

Impacts

Yes	No

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If applicable, indicate the Floodplain Level?

Level 1

Level 2

Level 3

Level 4

Level 5

Use the IDNR Floodway Information Portal to help determine potential impacts. Include floodplain map in appendix. Discuss impacts according to the classification system. If encroachment on a flood plain will occur, coordinate with the Local Flood Plain Administrator during design to insure consistency with the local flood plain planning.

The IDNR Indiana Floodway Information Portal website (<https://indnr.maps.arcgis.com/apps/webappviewer/index.html?id=05026dabc2e8461983e196d56a213c1e>) was accessed on July 24, 2023 by Lochmueller Group. This project is not located in a regulatory floodplain as determined from approved IDNR floodplain maps (Appendix F, F8). Therefore, it does not fall within the guidelines for the implementation of 23 CFR 650, 23 CFR 771, and 44 CFR. No impacts are expected.

Farmland	Presence	Impacts	
		Yes	No
Agricultural Lands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prime Farmland (per NRCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Points (from Section VII of CPA-106/AD-1006*) _____			
<i>*If 160 or greater, see CE Manual for guidance.</i>			

Discuss existing farmland resources in the project area, impacts that will occur to farmland, and mitigation and minimization measures considered.

Based on a desktop review, site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group, and the aerial map of the project area (Appendix B, B3), there is no land that meets the definition of farmland under the Farmland Protection Policy Act (FPPA) within or adjacent to the project area. The requirements of the FPPA do not apply to this project; therefore, no impacts are expected. An early coordination letter was sent on December 29, 2022, to Natural Resources Conservation Service (NRCS). The NRCS responded on January 3, 2023 and stated the project will not cause a conversion of prime farmland (Appendix C, C6).

SECTION D – CULTURAL RESOURCES

Minor Projects PA	Category(ies) and Type(s) <input type="text" value="Category B; Types 3, 4, 9 & 10"/>	INDOT Approval Date(s) <input type="text" value="August 17, 2023"/>	N/A <input type="text"/>
Full 106 Effect Finding			
No Historic Properties Affected	<input type="checkbox"/>	No Adverse Effect	<input type="checkbox"/>
		Adverse Effect	<input type="checkbox"/>
Eligible and/or Listed Resources Present			
NRHP Building/Site/District(s)	<input type="checkbox"/>	Archaeology	<input type="checkbox"/>
		NRHP Bridge(s)	<input type="checkbox"/>

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Documentation Prepared (mark all that apply)

- APE, Eligibility and Effect Determination
- 800.11 Documentation
- Historic Properties Report or Short Report
- Archaeological Records Check and Assessment
- Archaeological Phase Ia Survey Report
- Archaeological Phase Ic Survey Report
- Other:

ESD Approval Date(s)

SHPO Approval Date(s)

Memorandum of Agreement (MOA)

MOA Signature Dates (List all signatories)

--

If the project falls under the MPPA, describe the category(ies) that the project falls under and any approval dates. If the project requires full Section 106, use the headings provided. The completion of the Section 106 process requires that a Legal Notice be published in local newspapers. Please indicate the publication date, name of the paper(s) and the comment period deadline. Include any further Section 106 work which must be completed at a later date, such as mitigation from a MOA or avoidance commitments.

On August 17, 2023 the INDOT Cultural Resource Office (CRO) determined that this project falls within the guidelines of Category B, Types 3, 4, 9, & 10 under the Minor Projects Programmatic Agreement (Appendix D, page D1 to D7). The MPPA types include the following work:

- B-3: Construction of added travel, turning, or auxiliary lanes and shoulder widening under certain conditions.
- B-4: Installation of new safety appurtenances, including but not limited to, guardrails, barriers, glare screens, and crash attenuators under certain conditions.
- B-9: Installation, replacement, repair, lining, or extension of culverts and other drainage structures under certain conditions.
- B-10: Slide corrections, slope repairs, and other erosion control measures, in undisturbed soils under certain conditions.

The project occurs in undisturbed soils and an archaeology report was required. Cultural Resource Analysts, Inc. completed a Phase Ia archaeological reconnaissance on May 31, 2022 and April 6, 2023. A 1.3-acre survey area was examined through the excavation of shovel probes and visual inspection of areas of disturbance. No archaeological resources were identified within the project area. INDOT CRO approved the archaeology report on August 17, 2023. It is recommended that the project be allowed to proceed as planned because the Phase Ia archaeological reconnaissance has located no archaeological sites within the project area and/or previously recorded sites that were investigated warrant no additional investigation. No further consultation is required. This completes the Section 106 process and the responsibilities of the FHWA under Section 106 have been fulfilled.

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SECTION E – SECTION 4(f) RESOURCES/ SECTION 6(f) RESOURCES

	<u>Presence</u>	<u>Use</u>	
		Yes	No
Parks and Other Recreational Land			
Publicly owned park	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Publicly owned recreation area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (school, state/national forest, bikeway, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildlife and Waterfowl Refuges			
National Wildlife Refuge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Natural Landmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State Wildlife Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State Nature Preserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic Properties			
Site eligible and/or listed on the NRHP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Evaluations</u>			
<u>Prepared</u>			
Programmatic Section 4(f)	<input type="checkbox"/>		
“De minimis” Impact	<input type="checkbox"/>		
Individual Section 4(f)	<input type="checkbox"/>		
Any exception included in 23 CFR 774.13	<input type="checkbox"/>		

Discuss Programmatic Section 4(f) and “de minimis” Section 4(f) impacts in the discussion below. Individual Section 4(f) documentation must be included in the appendix and summarized below. Discuss proposed alternatives that satisfy the requirements of Section 4(f). FHWA has identified various exceptions to the requirement for Section 4(f) approval. Refer to 23 CFR § 774.13 - Exceptions.

Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic properties regardless of ownership. Lands subject to this law are considered Section 4(f) resources.

Based on a desktop review, the aerial map of the project area (Appendix B, page B3), and the RFI report (Appendix E, E1 to E9), there are no potential 4(f) resources located within the 0.5-mile search radius. According to additional research and by the site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group, there are no Section 4(f) resources within or adjacent to the project area. Therefore, no use is expected.

	<u>Presence</u>	<u>Use</u>	
		Yes	No
Section 6(f) Involvement			
Section 6(f) Property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discuss Section 6(f) resources present or not present. Discuss if any conversion would occur as a result of this project. If conversion will occur, discuss the conversion approval.

The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreation resources. Section 6(f) of this Act prohibits conversion of lands purchased with LWCF monies to a non-recreation use.

A review of 6(f) properties on the INDOT ESD website revealed a total of four properties in Crawford County (Appendix I, I1). None of these properties are located within or adjacent to the project area. Therefore, there will be no impacts to 6(f) resources.

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SECTION F – Air Quality

STIP/TIP and Conformity Status of the Project

Is the project in the most current STIP/TIP? **Yes**
 Is the project located in an MPO Area? **No**
 Is the project in an air quality non-attainment or maintenance area?
 If Yes, then:
 Is the project in the most current MPO TIP?
 Is the project exempt from conformity?
 If No, then:
 Is the project in the Transportation Plan (TP)?
 Is a hot spot analysis required (CO/PM)?

Yes	No
X	
	X
	X

Location in STIP: Page 187
 Name of MPO (if applicable): _____
 Location in TIP (if applicable): _____
 Level of MSAT Analysis required?
 Level 1a Level 1b Level 2 Level 3 Level 4 Level 5

Describe if the project is listed in the STIP and if it is in a TIP. Describe the attainment status of the county(ies) where the project is located. Indicate whether the project is exempt from a conformity determination. If the project is not exempt, include information about the TP and TIP. Describe if a hot spot analysis is required and the MSAT Level.

STIP/TIP

The FY 2024-2028 STIP is listed based on the lead DES number in the contract. The lead DES number for this contract is 1900300. The FY 2024-2028 STIP includes DES number 1900294 by reference with the contract number R-42199 (Appendix H, H1).

Attainment Status

This project is located in Crawford County, which is currently in attainment for all criteria pollutants according to EPA's Green Book (https://www3.epa.gov/airquality/greenbook/anayo_in.html). Therefore, the conformity procedures of 40 CFR Part 93 do not apply.

MSAT

This project is of a type qualifying as a categorical exclusion (Group 1) under 23 CFR 771.117(c), or exempt under the Clean Air Act conformity rule under 40 CFR 93.126, and as such, a Mobile Source Air Toxics analysis is not required.

SECTION G - NOISE

Noise

Is a noise analysis required in accordance with FHWA regulations and INDOT's traffic noise policy? **Yes** **No**
 Date Noise Analysis was approved/technically sufficient by INDOT ESD: N/A

Describe if the project is a Type I or Type III project. If it is a Type I project, describe the studies completed to date and if noise impacts were identified. If noise impacts were identified, describe if abatement is feasible and reasonable and include a statement of likelihood.

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This project is a Type III project. In accordance with 23 CFR 772 and the current *Indiana Department of Transportation Traffic Noise Analysis Procedure*, this action does not require a formal noise analysis.

SECTION H – COMMUNITY IMPACTS

Regional, Community & Neighborhood Factors

- Will the proposed action comply with the local/regional development patterns for the area?
- Will the proposed action result in substantial impacts to community cohesion?
- Will the proposed action result in substantial impacts to local tax base or property values?
- Will construction activities impact community events (festivals, fairs, etc.)?
- Does the community have an approved transition plan?
- If No, are steps being made to advance the community's transition plan?
- Does the project comply with the transition plan? (explain in the discussion below)

Yes	No
X	
	X
	X
	X
	X
	X

Discuss how the project complies with the area's local/regional development patterns; whether the project will impact community cohesion; and impact community events. Discuss how the project conforms with the ADA Transition Plan.

The project will ultimately be beneficial to local businesses and properties due to addressing the deterioration of the road. Overall, the negative impacts to property owners and local businesses within the project area will consist primarily of short-term construction impacts. No relocations are expected. Property owners will be provided access throughout the duration of the project to reduce impacts as much as possible. The project is not anticipated to result in substantial impacts to community cohesion because it will not change access to properties in the area. The project is not expected to impact the surrounding community or cause economic impacts to the surrounding area. Therefore, this project will have minimal or no negative impacts to the community or local economy.

According to the Indiana Festivals website (www.indianafestivals.org) accessed on May 17, 2023 by Lochmueller Group, there are no fairs and festivals scheduled within 10 miles of the project.

The MOT may pose delays and temporary inconveniences to traveling motorists (including school buses and emergency services); however, all inconveniences will cease upon project completion. The MOT for the project is not anticipated to impact access to community events.

The Americans with Disabilities Act (ADA) Transition Plan for Crawford County, Indiana was not identified on the Crawford County website. There are no pedestrian facilities within the project area and no pedestrian facilities will be constructed. There are no issues with the ADA regarding this project.

Public Facilities and Services

Discuss what public facilities and services are present in the project area and impacts (such as MOT) that will occur to them. Include how the impacts have been minimized and what coordination has occurred. Some examples of public facilities and services include health facilities, educational facilities, public and private utilities, emergency services, religious institutions, airports, transportation or public pedestrian and bicycle facilities.

Based on a desktop review, the aerial map of the project area (Appendix B, B3), and the RFI report (Appendix E, E1 to E9), there is one religious facility, Sulfur Pentecostal Church, located within 0.5 mile of the project. There are no public facilities within or adjacent to the project area, which was confirmed by the site visits on September 29, 2021 and September 27, 2022 by Lochmueller Group. Therefore, no impacts are expected. Access to all properties will be maintained during construction.

An early coordination letter was sent to the Crawford County Highway Department, Crawford County Sheriff's Department, Crawford County Emergency Management Agency, Crawford County Community Schools, and the Leavenworth Fire Department on December 29, 2022 (Appendix C, C1 to C3). No response was received from these agencies.

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It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access.

Environmental Justice (EJ) (Presidential EO 12898)

During the development of the project were EJ issues identified?

Does the project require an EJ analysis?

If YES, then:

Are any EJ populations located within the project area?

Will the project result in adversely high and disproportionate impacts to EJ populations?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Indicate if EJ issues were identified during project development. If an EJ analysis was not required, discuss why. If an EJ analysis was required, describe how the EJ population was identified. Include if the project has a disproportionately high or adverse effect on EJ populations and explain your reasoning. If yes, describe actions to avoid, minimize and mitigate these effects.

Under FHWA Order 6640.23A, FHWA and the project sponsor, as a recipient of funding from FHWA, are responsible to ensure that their programs, policies, and activities do not have a disproportionately high and adverse effect on minority or low-income populations. Per the current INDOT Categorical Exclusion Manual, an Environmental Justice (EJ) Analysis is required for any project that has two or more relocations or 0.5 acre of additional permanent right-of-way. The project will require 0.54 acre of new ROW. Therefore, an EJ Analysis is required.

Potential EJ impacts are detected by locating minority and low-income populations relative to a reference population to determine if populations of EJ concern exists and whether there could be disproportionately high and adverse impacts to them. The reference population may be a county, city or town and is called the community of comparison (COC). In this project, the COC is Crawford County, Indiana. The community that overlaps the project area is called the affected community (AC). In this project, the AC is Census Tract 9521. An AC has a population of concern for EJ if the population is more than 50% minority or low-income or if the low-income or minority population is 125% of the COC. Data from the 2017-2021 American Community Survey was obtained from the US Census Bureau Website (<https://data.census.gov/>) on May 4, 2023 by Lochmueller Group. The data collected for minority and low-income populations within the AC are summarized in the below table.

Table: Minority and Low-Income Data (2017-2021 American Community Survey)		
	COC – Crawford County	AC – Census Tract 9521
Percent Minority	4.6%	4.1%
125% of COC	5.7%	AC < 125% COC
EJ Population of Concern		No
Percent Low-Income	19.2%	12.3%
125% of COC	24.0%	AC < 125% COC
EJ Population of Concern		No

The AC (Census Tract 9521) has a percent minority of 4.1% which is below 50% and is below the 125% COC threshold. Therefore, the AC does not contain minority populations of EJ concern.

The AC (Census Tract 9521) has a percent low-income of 12.3% which is below 50% and is below the 125% COC threshold. Therefore, the AC does not contain low-income populations of EJ concern.

The census data sheets, map, and calculations can be found in Appendix I, I2 to I8. No further environmental justice analysis is warranted.

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Relocation of People, Businesses or Farms

Will the proposed action result in the relocation of people, businesses or farms?
Is a BIS or CSRS required?

Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

Number of relocations: Residences: 0 Businesses: 0 Farms: 0 Other: 0

Discuss any relocations that will occur due to the project. If a BIS or CSRS is required, discuss the results in the discussion below.

No relocations of people, businesses, or farms will take place as a result of this project.

SECTION I – HAZARDOUS MATERIALS & REGULATED SUBSTANCES

Hazardous Materials & Regulated Substances (Mark all that apply)

Documentation

- Red Flag Investigation (RFI)
- Phase I Environmental Site Assessment (Phase I ESA)
- Phase II Environmental Site Assessment (Phase II ESA)
- Design/Specifications for Remediation required?

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Date RFI concurrence by INDOT SAM (if applicable): April 5, 2022

Include a summary of the potential hazardous material concerns found during review. Discuss in depth sites found within, directly adjacent to, or ones that could impact the project area. Refer to current INDOT SAM guidance. If additional documentation (special provisions, pay quantities, etc.) will be needed, include in discussion. Include applicable commitments.

Based on a review of geographic information system (GIS) and available public records, the RFI was completed on March 31, 2022 by Lochmueller Group and INDOT Site Assessment & Management (SAM) provided their concurrence on April 5, 2022 (Appendix E, E1 to E9). One Leaking Underground Storage Tank (LUST) site is located within 0.5 mile of the project area. The LUST site identified will not impact the project. Further investigation for hazardous material concerns is not required at this time.

Part IV – Permits and Commitments

PERMITS CHECKLIST

Permits (mark all that apply)

Likely Required

Army Corps of Engineers (404/Section10 Permit)

- Nationwide Permit (NWP)
- Regional General Permit (RGP)
- Individual Permit (IP)
- Other

IN Department of Environmental Management (401/Rule 5)

- Nationwide Permit (NWP)
- Regional General Permit (RGP)
- Individual Permit (IP)
- Isolated Wetlands
- Rule 5

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Permits (mark all that apply)

Likely Required

Other	<input type="checkbox"/>
IN Department of Natural Resources	
Construction in a Floodway	<input type="checkbox"/>
Navigable Waterway Permit	<input type="checkbox"/>
Other	<input type="checkbox"/>
Mitigation Required	<input type="checkbox"/>
US Coast Guard Section 9 Bridge Permit	<input type="checkbox"/>
Others (Please discuss in the discussion below)	<input type="checkbox"/>

List the permits likely required for the project and summarize why the permits are needed, including permits designated as "Other."

No permits are anticipated to be required.

Applicable recommendations provided by resource agencies are included in the *Environmental Commitments* section of this document. If permits are found to be necessary, the conditions of the permit will be requirements of the project and will supersede these recommendations.

It is the responsibility of the project sponsor to identify and obtain all required permits.

ENVIRONMENTAL COMMITMENTS

List all commitments and include the name of agency/organization requesting/requiring the commitment(s). Listed commitments should be numbered.

Firm:

- 1) If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately. (INDOT ESD and INDOT Vincennes District)
- 2) It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access. (INDOT Vincennes District)
- 3) General AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs. (USFWS)
- 4) Lighting AMM 1: Direct temporary lighting away from suitable habitat during the active season. (USFWS)
- 5) Tree Removal AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal. (USFWS)
- 6) Tree Removal AMM 2: Apply time of year restrictions (April 1 – November 15) for tree removal when bats are not likely to be present, or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/rail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed. (USFWS)
- 7) Tree Removal AMM 3: Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits). (USFWS)
- 8) Tree Removal AMM 4: Do not remove documented Indiana bat or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or documented foraging habitat any time of year. (USFWS)
- 9) Hibernacula AMM 1: For projects located within karst areas, on-site personnel will use best management practices, secondary containment measures, or other standard spill prevention and countermeasures to avoid impacts to possible hibernacula. Where practicable, a 300 foot buffer will be employed to separate fueling areas and other major containment risk activities from caves, sinkholes, losing streams, and springs in karst topography. (USFWS)

Indiana Department of Transportation

County Crawford

Route SR 237

Des. No. 1900294

- 10) A culvert inspection occurred on August 16, 2023 and no evidence of birds or bats using the structure was observed. USFWS Bridge/Structure Assessments are only valid for two years. If construction will begin after August 16, 2025, an inspection of the structure by a qualified individual, must be performed. Inspection of the structure should check for presence of bats/bat indicators and/or presence of birds. The results of the inspection must indicate no signs of bats or birds. If signs of bats or birds are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately. This firm commitment is included in the Environmental Commitments section of this document. (INDOT ESD)
- 11) Tree removal dates for projects located within the hibernacula buffer are from November 15 to March 31 (instead of the standard October 1 to March 31) to allow for the conclusion of fall swarming around the hibernacula. (USFWS)

For Further Consideration:

- 1) Impacts to non-wetland forest of one (1) acre or more in a rural or urban area should be mitigated at a minimum 2:1 ratio based on area of impact. Impacts to non-wetland forest under one (1) acre but at least 0.10 acre in a rural or urban area should be mitigated at a minimum 1:1 ratio based on area of impact. Impacts under 0.10 acre in a rural area typically do not require mitigation or additional plantings beyond seeding and stabilizing disturbed areas, though there are exceptions for high quality habitat sites. Impacts under 0.10 acre in an urban area should be mitigated by replacing trees that are 10" diameter-at-breast height (dbh) or greater by planting five trees, 1" to 2" in dbh, for each tree which is removed that is 10" dbh or greater. Seeding and stabilizing disturbed areas is required regardless of the impact amount and location. If floodway impacts to wetland and non-wetland habitat areas combine to be 0.10 acres or more, mitigation should be done and coordinated with the biologist, as needed. (IDNR DFW)
- 2) Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 5 inches dbh, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30. (IDNR DFW and USFWS)

Appendix A: INDOT Supporting Documentation

Threshold Chart.....A1

Appendix B: Graphics

Location Map B1
USGS Topographic Map B2
Aerial Map (2018)..... B3
Photo Location Map B4
Site Photographs B5-B11
Stage 3 Plans B12-B23

Appendix C: Early Coordination

Sample Early Coordination Letter (December 29, 2022) C1-C3
Indiana Geological and Water Survey
Automated Response Letter (December 29, 2022) C4-C5
Natural Resources Conservation Service
Response Letter (January 3, 2023)..... C6
Hoosier National Forest
Response Letter (January 3, 2023)..... C7
Indiana Department of Natural Resources, Division of Fish and Wildlife
Response Letter (January 26, 2023)..... C8-C9
U.S. Fish and Wildlife Service
Official Species List (July 26, 2023)..... C10-C26
NLAA Concurrence Verification Letter (April 18, 2023) C27-C38
Indiana Bat Critical Habitat NLAA Concurrence (August 7, 2023) C39-C41
Culvert Assessment Form (August 16, 2023) C42

Appendix D: Section 106 of the National Historic Preservation Act (NHPA)

MPPA Determination FormD1-D7
Indiana Archaeological Short Report ExcerptsD8-D9

Appendix E: Red Flag Investigation and Hazardous Materials

Red Flag Investigation (Approved April 5, 2022)..... E1-E9

Appendix F: Water Resources

Waters of the US Report (Approved November 7, 2022) F1-F5
USDA Soil Survey Geographic Database (SSURGO) Soils Map F6
USFWS National Wetlands Inventory (NWI) Map F7
Best Available Flood Hazard Map..... F8
Water Resources Map F9

Appendix G: Public Involvement

Notice of Survey Letter (August 5, 2021).....G1

Appendix H: Air Quality

Relevant page from the INDOT FY 2024-2028 STIPH1

Appendix I: Other Information

Land and Water Conservation Fund Grants: Crawford County I1
Environmental Justice AnalysisI2-I8

Categorical Exclusion

Appendix A

INDOT Supporting Documentation

Categorical Exclusion Level Thresholds

	PCE	Level 1	Level 2	Level 3	Level 4 ¹
Section 106	Falls within guidelines of Minor Projects PA	“No Historic Properties Affected”	“No Adverse Effect”	-	“Adverse Effect” Or Historic Bridge involvement ²
Stream Impacts	No construction in waterways or water bodies	< 300 linear feet of stream impacts	≥ 300 linear feet of stream impacts	-	Individual 404 Permit
Wetland Impacts	No adverse impacts to wetlands	< 0.1 acre	-	< 1 acre	≥ 1 acre
Right-of-way³	Property acquisition for preservation only or none	< 0.5 acre	≥ 0.5 acre	-	-
Relocations	None	-	-	< 5	≥ 5
Threatened/Endangered Species (Species Specific Programmatic for Indiana bat & northern long eared bat)	“No Effect”, “Not likely to Adversely Affect” (Without AMMs ⁴ or with AMMs required for all projects ⁵)	“Not likely to Adversely Affect” (With any other AMMs)	-	“Likely to Adversely Affect”	Project does not fall under Species Specific Programmatic
Threatened/Endangered Species (Any other species)	Falls within guidelines of USFWS 2013 Interim Policy	“No Effect”, “Not likely to Adversely Affect”	-	-	“Likely to Adversely Affect”
Environmental Justice	No disproportionately high and adverse impacts	-	-	-	Potential ⁶
Sole Source Aquifer	Detailed Assessment Not Required	-	-	-	Detailed Assessment
Floodplain	No Substantial Impacts	-	-	-	Substantial Impacts
Coastal Zone Consistency	Consistent	-	-	-	Not Consistent
National Wild and Scenic River	Not Present	-	-	-	Present
New Alignment	None	-	-	-	Any
Section 4(f) Impacts	None	-	-	-	Any
Section 6(f) Impacts	None	-	-	-	Any
Added Through Lane	None	-	-	-	Any
Permanent Traffic Alteration	None	-	-	-	Any
Coast Guard Permit	None	-	-	-	Any
Noise Analysis Required	No	-	-	-	Yes
Air Quality Analysis Required	No	-	-	-	Yes ⁷
Approval Level <ul style="list-style-type: none"> • District Env. Supervisor • Env. Services Division • FHWA 	Concurrence by INDOT District Environmental or Environmental Services	Yes	Yes	Yes Yes	Yes Yes Yes

¹Coordinate with INDOT Environmental Services. INDOT will then coordinate with the appropriate FHWA Environmental Specialist.

²Any involvement with a bridge processed under the Historic Bridge Programmatic Agreement.

³Permanent and/or temporary right-of-way.

⁴AMMs = Avoidance and Mitigation Measures.

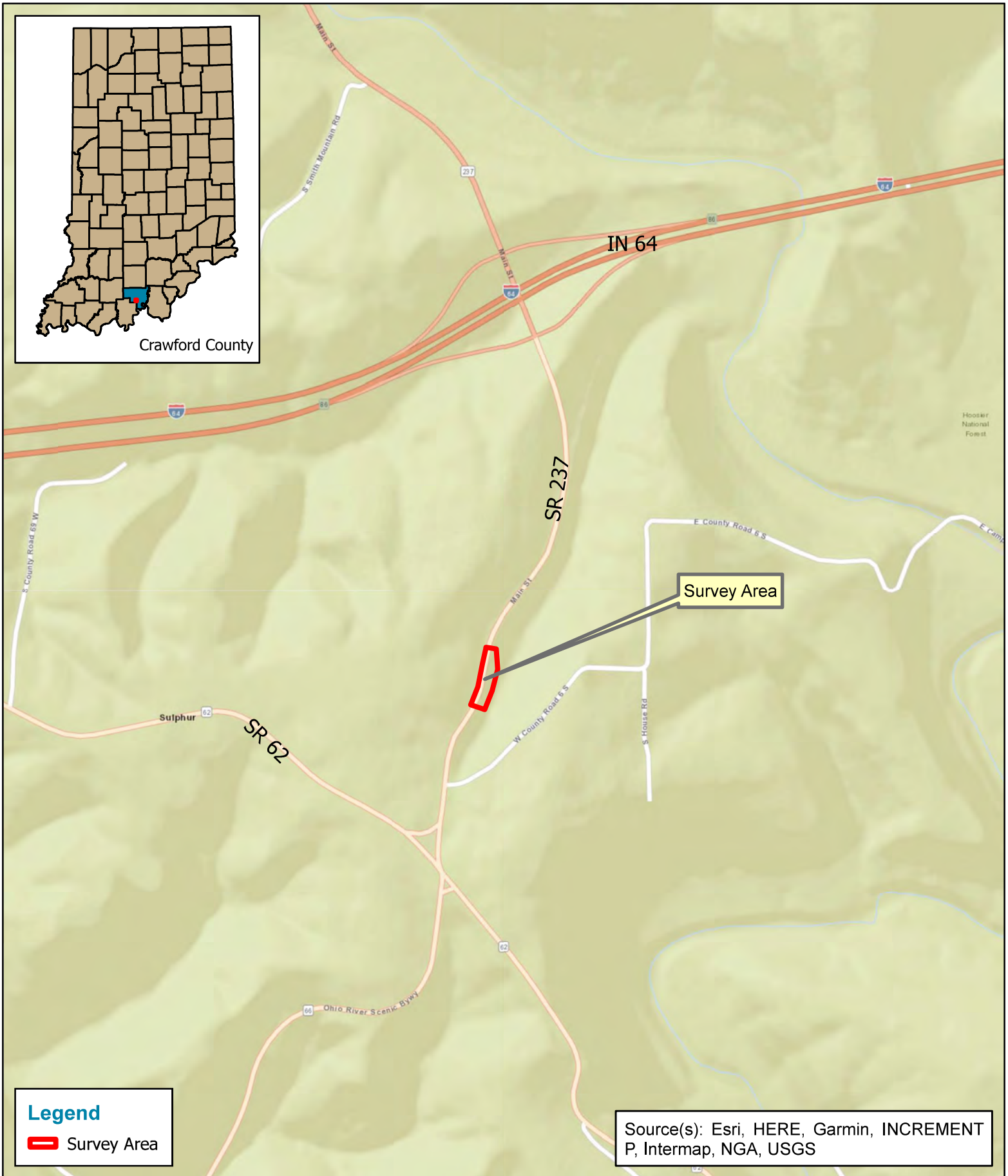
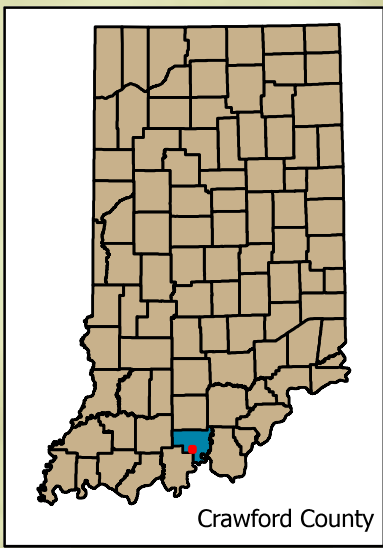
⁵AMMs determined by the IPAC decision key to be needed that are listed in the USFWS *User’s Guide for the Range-wide Programmatic Consultation for Indiana bat and Northern long-eared bat* as “required for all projects”.

⁶Potential for causing a disproportionately high and adverse impact.


⁷Hot Spot Analysis and/or MSAT Quantitative Emission Analysis.

*Substantial public or agency controversy may require a higher-level NEPA document.

Categorical Exclusion
Appendix B
Graphics



Legend


 Survey Area


Source(s): Esri, HERE, Garmin, INCREMENT P, Intermap, NGA, USGS



3502 Woodview Trace, Suite 150
 Indianapolis, IN 46268
 Phone: (317) 222-3880
 Fax: (317) 222-3881

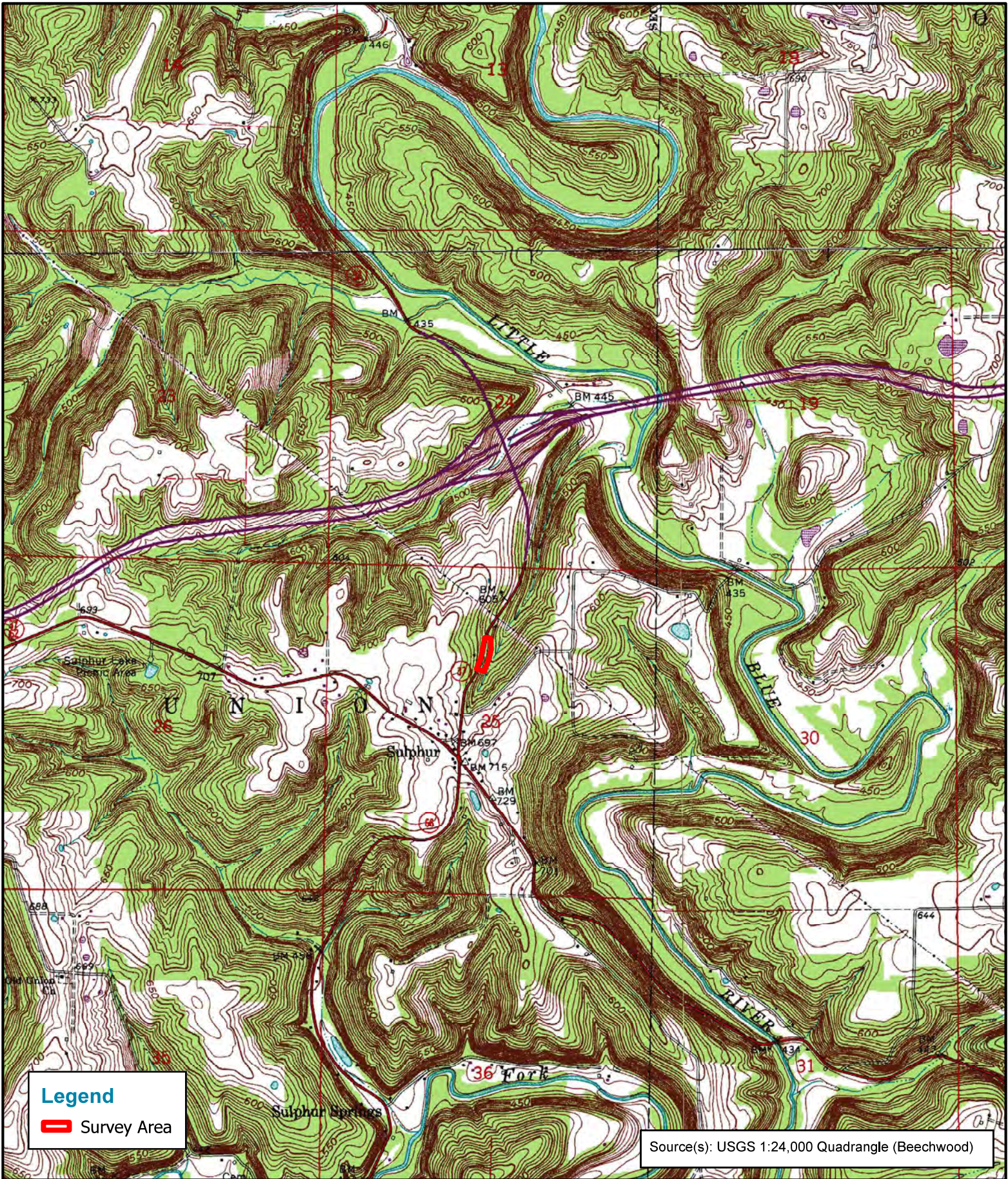
Location Map
Des. No. 1900294

0 0.13 0.25
 Miles




County: Crawford
 Township: Union
 State: Indiana

SR 237 0.33 mile north of SR 62/66 Jct
 Slide Correction Project
 Created: 8/3/2023, SBeaupre



Legend

 Survey Area

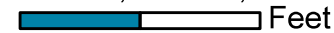
Source(s): USGS 1:24,000 Quadrangle (Beechwood)



3502 Woodview Trace, Suite 150
 Indianapolis, IN 46268
 Phone: (317) 222-3880
 Fax: (317) 222-3881

USGS Quad Map (1:24,000)

Des. No. 1900294

0 1,250 2,500
 Feet



County: Crawford
 Township: Union
 State: Indiana

SR 237 0.33 mile north of SR 62/66 Jct
 Slide Correction Project
 Created: 8/3/2023, SBeaupre



Legend

- Survey Area
- ROW Reacquisition
- Permanent ROW
- Construction Limits
- Temporary ROW
- Existing ROW

Aerial Source: 2021 Indiana Map

3502 Woodview Trace, Suite 150
 Indianapolis, IN 46268
 Phone: (317) 222-3880
 Fax: (317) 222-3881

Aerial Map
Des. No. 1900294

0 45 90
 Feet

N

County: Crawford
 Township: Union
 State: Indiana

SR 237 0.33 mile north of SR 62/66 Jct
 Slide Correction Project
 Created: 8/3/2023, SBeaupre



3502 Woodview Trace, Suite 150
 Indianapolis, IN 46268
 Phone: (317) 222-3880
 Fax: (317) 222-3881

Photo Location Map
Des. No. 1900294

0 50 100 Feet

County: Crawford
 Township: Union
 State: Indiana

SR 237 0.33 mile north of SR 62/66 Jct
 Slide Correction Project
 Created: 8/3/2023, SBeaupre



1 – View of survey area facing southeast



2 – View of survey area facing south



3 – View of SR 237 road embankment facing northeast; note steep slope east of road



4 – View of survey area east of SR 237 facing south
Dominant vegetation includes; White Oak (FACU), Sugar Maple (FACU), and Sycamore (FACW)



5 – View of RSD1 facing south; bedrock exposed in portions of the ditch



6 – View of survey area facing southwest; RSD1 is on the west



7 – View of RSD1 facing north

Dominant roadside herbaceous vegetation includes; Tall Redtop (FACU), Japanese Bristle Grass (UPL), and Hairy Crab Grass (FACU)



8 – View of private driveway over RSD1 facing southwest; a 12 inch diameter pipe conveys water beneath the driveway



9 – View of SR 237 road embankment facing north



10 – View of survey area east of SR 237 road embankment facing southeast



11 – View of forested portion of survey area east of SR 237 road embankment facing north



12 - View of survey area facing southwest



13 – View of RSD1 facing northeast
Dominant roadside herbaceous vegetation includes; Tall Redtop (FACU), Japanese Bristle Grass (UPL), and Hairy Crab Grass (FACU)



14 – View of survey area facing northeast

INDIANA DEPARTMENT OF TRANSPORTATION



ROAD PLANS

FOR SLIDE REPAIR

ROUTE: SR 237

AT: RP 30+-1

PROJECT NO.

1900294 P.E.

P.E.

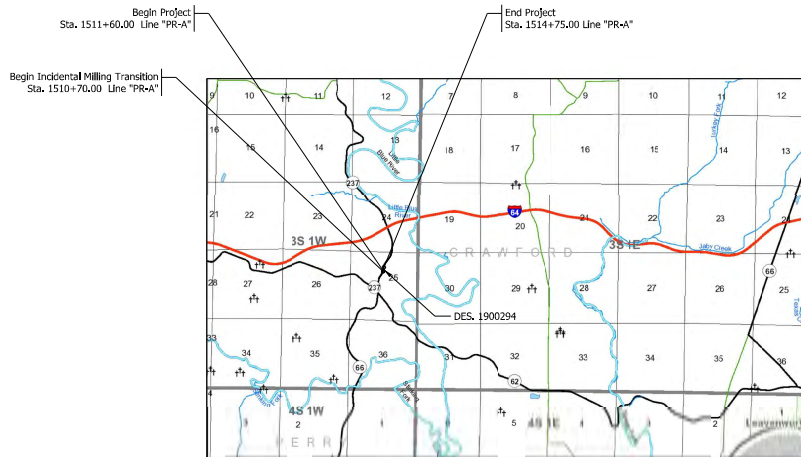
1900294 R/W

R/W

1900294 CONST. CONST.

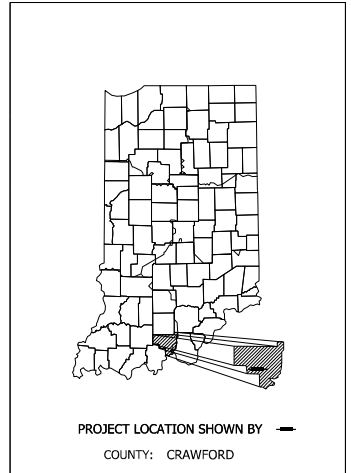
June 23, 2023
STG3 Plans

Slide Repair SR 237
Located 0.33 Miles North of the SR 62/SR 66 Junction
Section 25, T-3-S, R-1-W, Union Township, Crawford County, Indiana



TRAFFIC DATA	
A.A.D.T. (2022)	703 V.P.D.
A.A.D.T. (2044)	727 V.P.D.
D.H.V. (2044)	76 V.P.H.
DIRECTIONAL DISTRIBUTION	47/53 %
TRUCKS	5.21% A.A.D.T. 9.59% D.H.V.

DESIGN DATA	
DESIGN SPEED	45 M.P.H.
PROJECT DESIGN CRITERIA	3R (Non-Freeway)
FUNCTIONAL CLASSIFICATION	State Collector
RURAL/URBAN	Rural
TERRAIN	Rolling
ACCESS CONTROL	None



LATITUDE: 38°14'1.71"N LONGITUDE: 86°28'7.23"W

NET LENGTH:	0.060	MI.
GROSS LENGTH:	0.077	MI.
MAX. GRADE:	4.70%	%

HUC: 051401041105

INDIANA DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS DATED 2024
TO BE USED WITH THESE PLANS



WSP USA Inc.
115 W. Washington Street
Suite 12705
Indianapolis, IN 46204
TEL: 317-972-1706

PLANS PREPARED BY: WSP USA Inc. 317-972-1706 PHONE NUMBER

CERTIFIED BY: _____ DATE

APPROVED FOR LETTING: _____ DATE

INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE FILE	
DESIGNATION	
1900294	
SHEETS	
SURVEY BOOK	1 of 16
PROJECT	
CONTRACT	R-42199
PROJECT	1900294

REVISIONS		
SHEET NO.	DATE	REVISED

GENERAL NOTES	

INDEX	
SHEET NO.	DRAWINGS INDEX
1	TITLE
2	INDEX AND GENERAL NOTES
3	TYPICAL SECTIONS
4	PLAT SHEET
5	GEOMETRIC DETAILS
6	DETOUR SHEET
7	PLAN SHEET
8	PROFILE AND SUPERELEVATION DIAGRAM
9	RETAINING WALL PLAN AND PROFILE
10	RETAINING WALL DETAILS
11-12	SUMMARY OF QUANTITIES
13-16	CROSS SECTIONS

UTILITIES	
ELECTRIC: Dubois Rural Electric, Inc. JAKE WAGNER (812) 482-5454 jwagner@duboisrec.com 1400 Energy Drive, Jasper, IN 47547 duboisrec.com	WATER: Patoka Lake Reg. Water & Sewer District (Dubois) JOSH DIXON (812) 678-8325 joshd@dubois.net 2647 N. STATE RD 545 DUBOIS, IN 47527
TELEPHONE: Frontier Telephone 220 W 3rd St, Seymour, IN 47274	

Per Indiana State Law IC-9-1-26-16, It is against the law to excavate without notifying in the underground location service two (2) full working days before commencing work.

INDIANA UNDERGROUND
1-800-382-5544 OR CALL 811
24 HOURS A DAY 7 DAYS A WEEK

Note: The contractor shall field verify existing utility locations prior to commencing work.

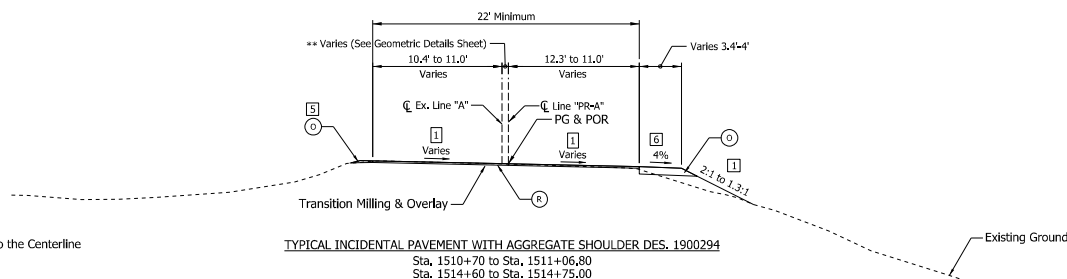
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RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
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CHECKED: AJD	CHECKED: AB	

INDIANA DEPARTMENT OF TRANSPORTATION	
SR 237 INDEX AND GENERAL NOTES	

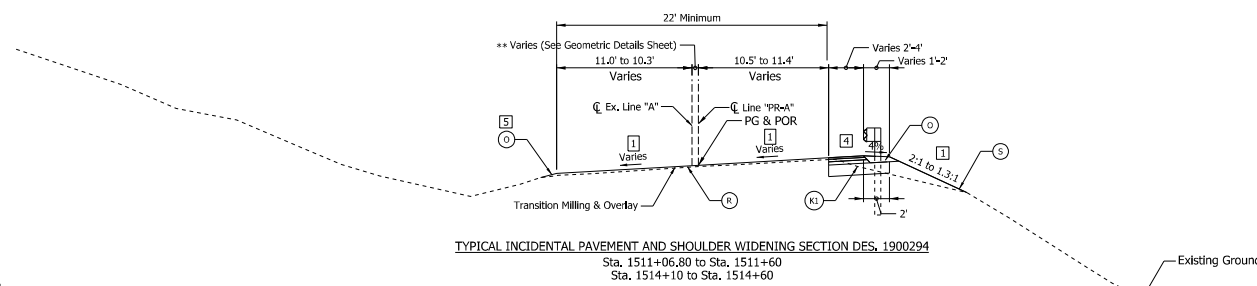
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N/A	
VERTICAL SCALE	DESIGNATION
N/A	1900294
SURVEY BOOK	SHEETS
	2 of 16
CONTRACT	PROJECT
R42199	1900294



TYPICAL INCIDENTAL PAVEMENT WITH AGGREGATE SHOULDER DES. 1900294
Sta. 1510+70 to Sta. 1511+06.80
Sta. 1514+60 to Sta. 1514+75.00

GRADED AGGREGATE SHOULDER WIDTHS [6]

Station Line "PR-A"	Width	Location
1510+70.00 to 1511+06.80	2' to 4'	Right
1511+06.80 to 1511+60.00	1' to 2'	Right
1514+09.87 to 1514+60.00	2' to 1'	Right
1514+60.00 to 1514+75.00	4' to 3.4'	Right



TYPICAL INCIDENTAL PAVEMENT AND SHOULDER WIDENING SECTION DES. 1900294
Sta. 1511+06.80 to Sta. 1511+60
Sta. 1514+10 to Sta. 1514+60

PAVED SHOULDER WIDTHS [4]

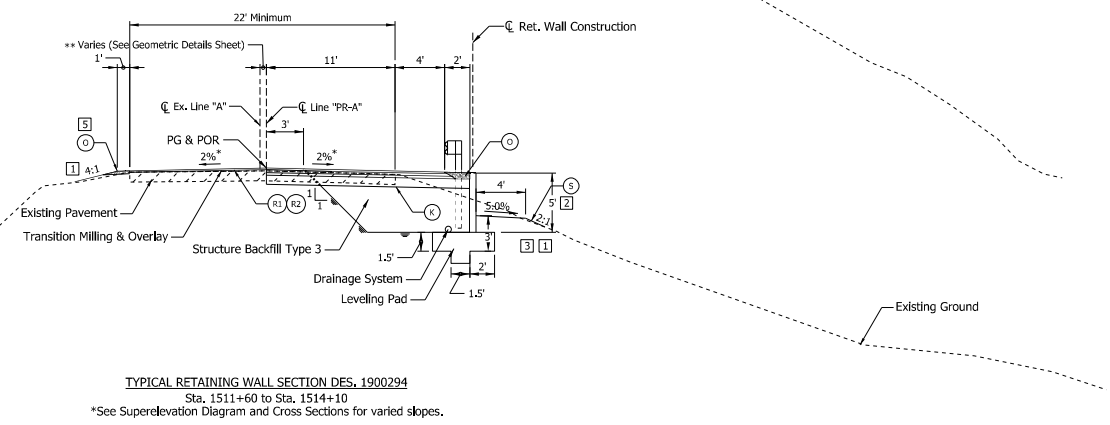
Station Line "PR-A"	Width	Location
1511+06.80 to 1511+60.00	3' to 4'	Right
1514+10.00 to 1514+60.00	4' to 3'	Right

** Due to variations of the Line "A" Centerline, the lane widths vary in reference to the Centerline but stay consistent relative to the crown point.

- [1] See Cross Sections for areas of varying slopes.
- [2] See Cross Sections for varied wall heights.
- [3] See Cross Sections for varied embedment depths.
- [4] Full Depth Shoulder Construction ends at Station 1515+10.00.
- [5] Compacted Aggregate depth based on pavement cross slope correction.

LEGEND

- (R) Incidental Transition Milling
Milling, Transition
1.5" of HMA Surface
165 lb/sys QC/QA-HMA, 3, 64, Surface, 9.5mm
- (K) Full Depth Shoulder Widening
165 lb/yd² QC/QA-HMA, 3, 64, Surface, 9.5mm
Widening with HMA
275 lb/yd² HMA Intermediate, Type B
660 lb/yd² HMA Base, Type B
Subgrade Treatment, Type IC
- (K) Full Depth Pavement
165 lb/yd² QC/QA-HMA, 3, 64, Surface, 9.5mm
275 lb/yd² QC/QA-HMA, 3, 64, Intermediate, 19.0 mm
660 lb/yd² QC/QA-HMA, 3, 64, Base, 25.0 mm
Subgrade Treatment, Type IC
- (O) Compacted Aggregate, No. 53
- (R1) HMA Resurface - Profile Grade Change 0"-1.5"
Milling, Transition (up to 1.5") then
165 lb/yd² QC/QA-HMA, 3, 64, Surface, 9.5mm on existing pavement
- (R2) HMA Resurface - Profile Grade Change 1.5"-4"
Milling, Transition (up to 2.5") then
165 lb/yd² QC/QA-HMA, 3, 64, Surface, 9.5mm on
275 lb/yd² QC/QA-HMA, 3, 64, Intermediate, 19.0 mm on existing pavement
- (S) Mulched Seeding, R



TYPICAL RETAINING WALL SECTION DES. 1900294
Sta. 1511+60 to Sta. 1514+10
*See Superelevation Diagram and Cross Sections for varied slopes.

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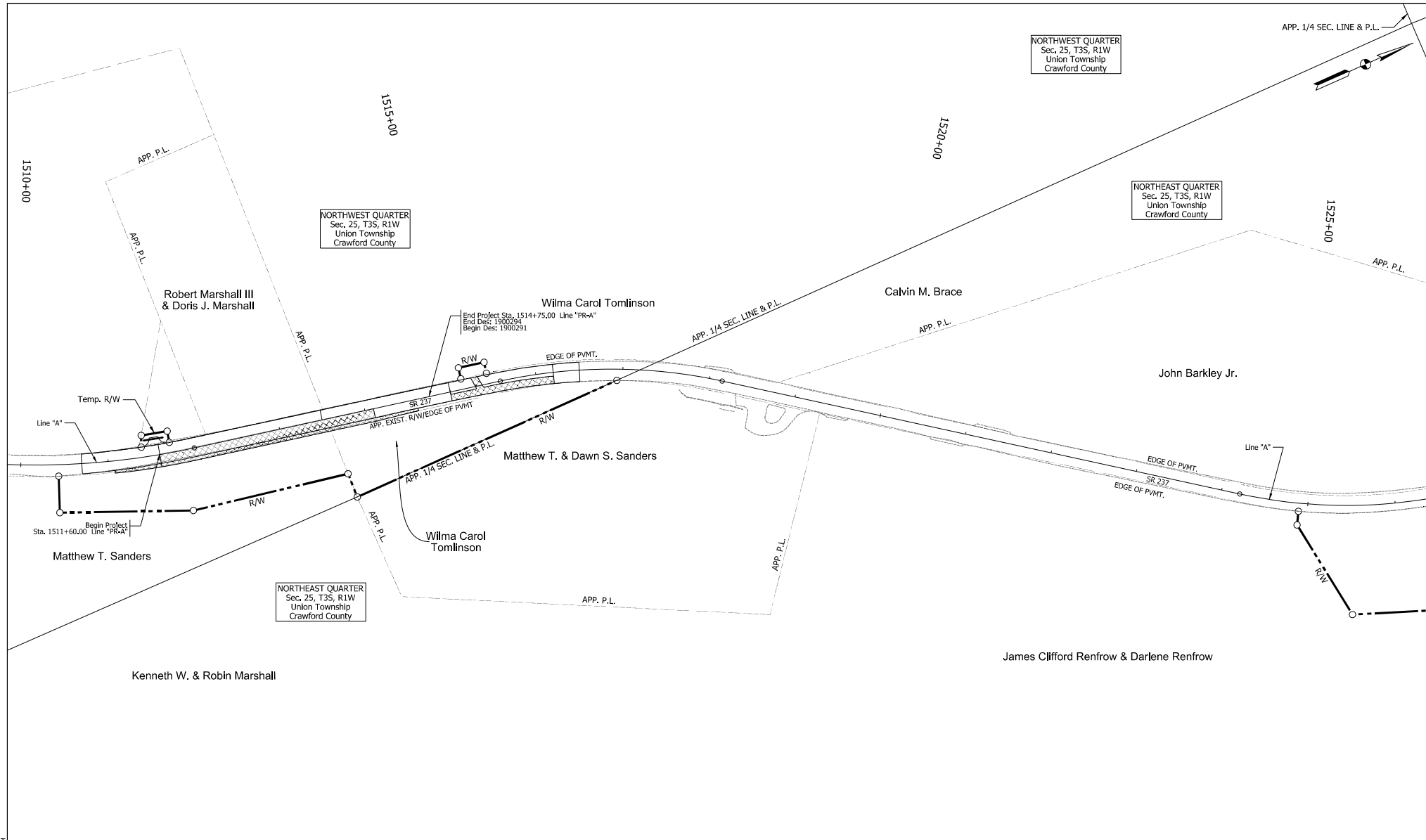
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RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: AB	DRAWN: PFW	
CHECKED: AJD	CHECKED: AB	

INDIANA
DEPARTMENT OF TRANSPORTATION

SR 237
LINE "PR-A"
TYPICAL SECTIONS

HORIZONTAL SCALE	BRIDGE FILE
1" = 10'	
VERTICAL SCALE	DESIGNATION
1" = 10'	1900294
SURVEY BOOK	SHEETS
	3 of 16
CONTRACT	PROJECT
R42199	1900294



PWT: 6/27/2023 7:49 PM

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DESIGNED: AB	DRAWN: PFV		
CHECKED: AJD	CHECKED: AB		

INDIANA
DEPARTMENT OF TRANSPORTATION

SR 237
PLAT NO. 1

HORIZONTAL SCALE	BRIDGE FILE
1" = 50'	
VERTICAL SCALE	DESIGNATION
N/A	1900294
SURVEY BOOK	SHEETS
	4 of 16
CONTRACT	PROJECT
R42199	1900294



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RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: AB	DRAWN: PFV	
CHECKED: AJD	CHECKED: AB	

INDIANA
 DEPARTMENT OF TRANSPORTATION

SR 237
 GEOMETRIC DETAILS

HORIZONTAL SCALE	BRIDGE FILE
1" = 50'	
VERTICAL SCALE	DESIGNATION
N/A	1900294
SURVEY BOOK	SHEETS
	5 of 16
CONTRACT	PROJECT
R42199	1900294



W20-2



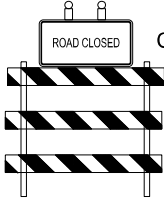
W20-3



W20-3

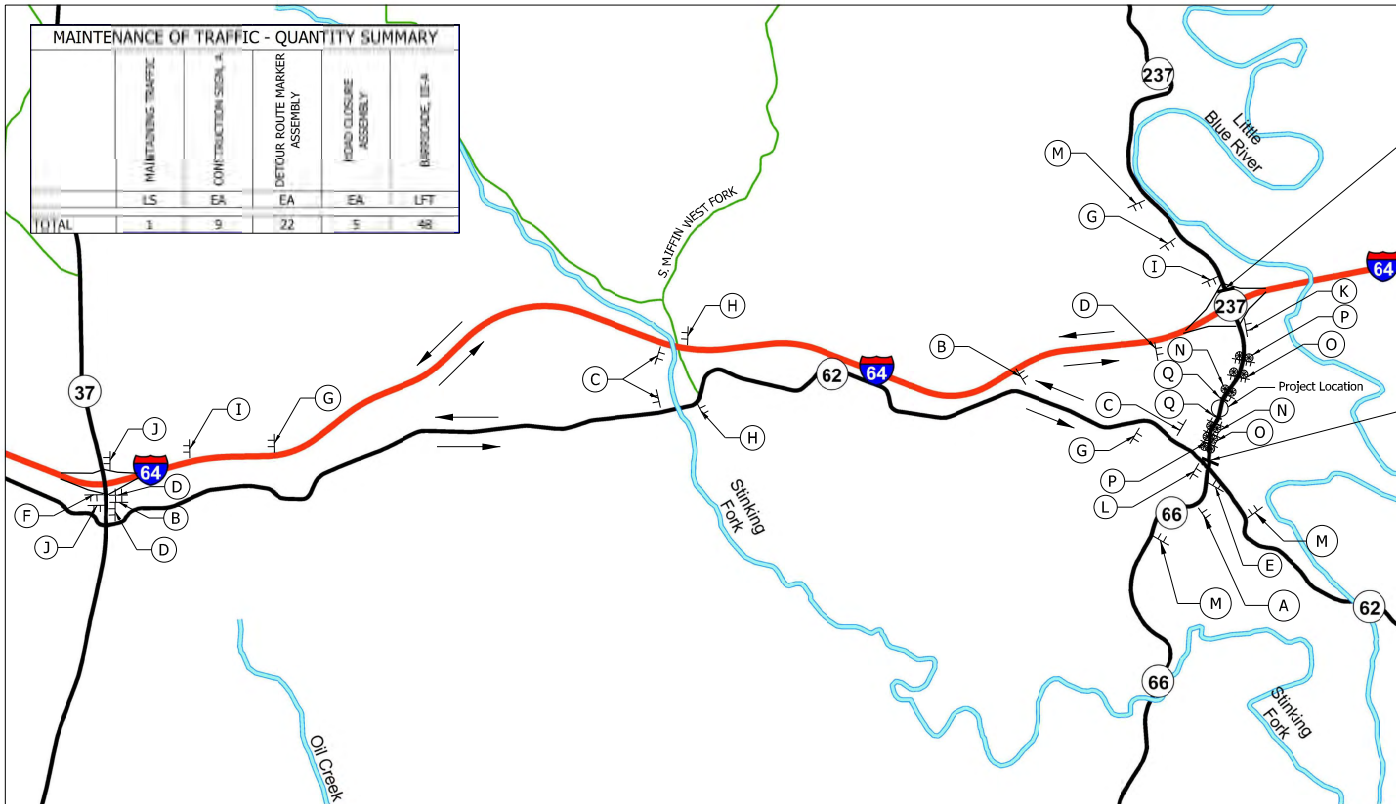


W20-3



24 ft Type III-A Barricades w/
Road Closure Sign Assembly w/ R11-2

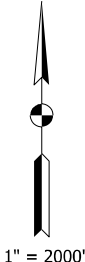
MAINTENANCE OF TRAFFIC - QUANTITY SUMMARY						
	MAINTAINING TRAFFIC	CONSTRUCTION SIGNALS	DETOUR ROUTE MARKER ASSEMBLY	ROAD CLOSURE ASSEMBLY	BARRICADE, IIF#	
TOTAL	1	9	22	5	48	



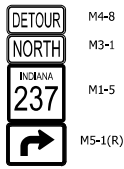
12 ft Type III-B Barricades w/
Road Closure Sign Assembly w/
R11-3a and M4-10(R)



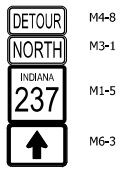
12 ft Type III-B Barricades w/
Road Closure Sign Assembly w/
R11-3a and M4-10(R)



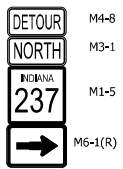
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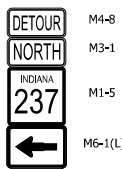
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C



D



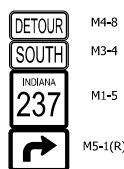
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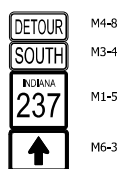
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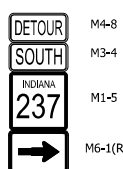
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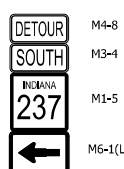
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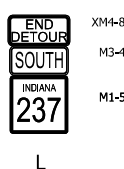
H



I



J



L

See INDOT Standard Drawings E 801-TCDT-01 and E 801-TCDT-04 for additional information and sign spacing.
All signage shall be in accordance with the Indiana Manual on Uniform Traffic Control Devices.

DATE: 02/23/2023 7:48 PM

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RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: AB	DRAWN: PFV	
CHECKED: AJD	CHECKED: AB	

INDIANA
DEPARTMENT OF TRANSPORTATION

SR 237
DETOUR SHEET

HORIZONTAL SCALE	BRIDGE FILE
1" = 2000'	
VERTICAL SCALE	DESIGNATION
N/A	1900294
SURVEY BOOK	SHEETS
	6 of 16
CONTRACT	PROJECT
R42199	1900294

BENCHMARK INFORMATION:

BM #3
CHISELED SQUARE ON ROCK OUTCROP
Sta. 1512+01.13 Line "PR-A", 23.94' LT.

NORTHWEST QUARTER
Sec. 25, T3S, R1W
Union Township
Crawford County

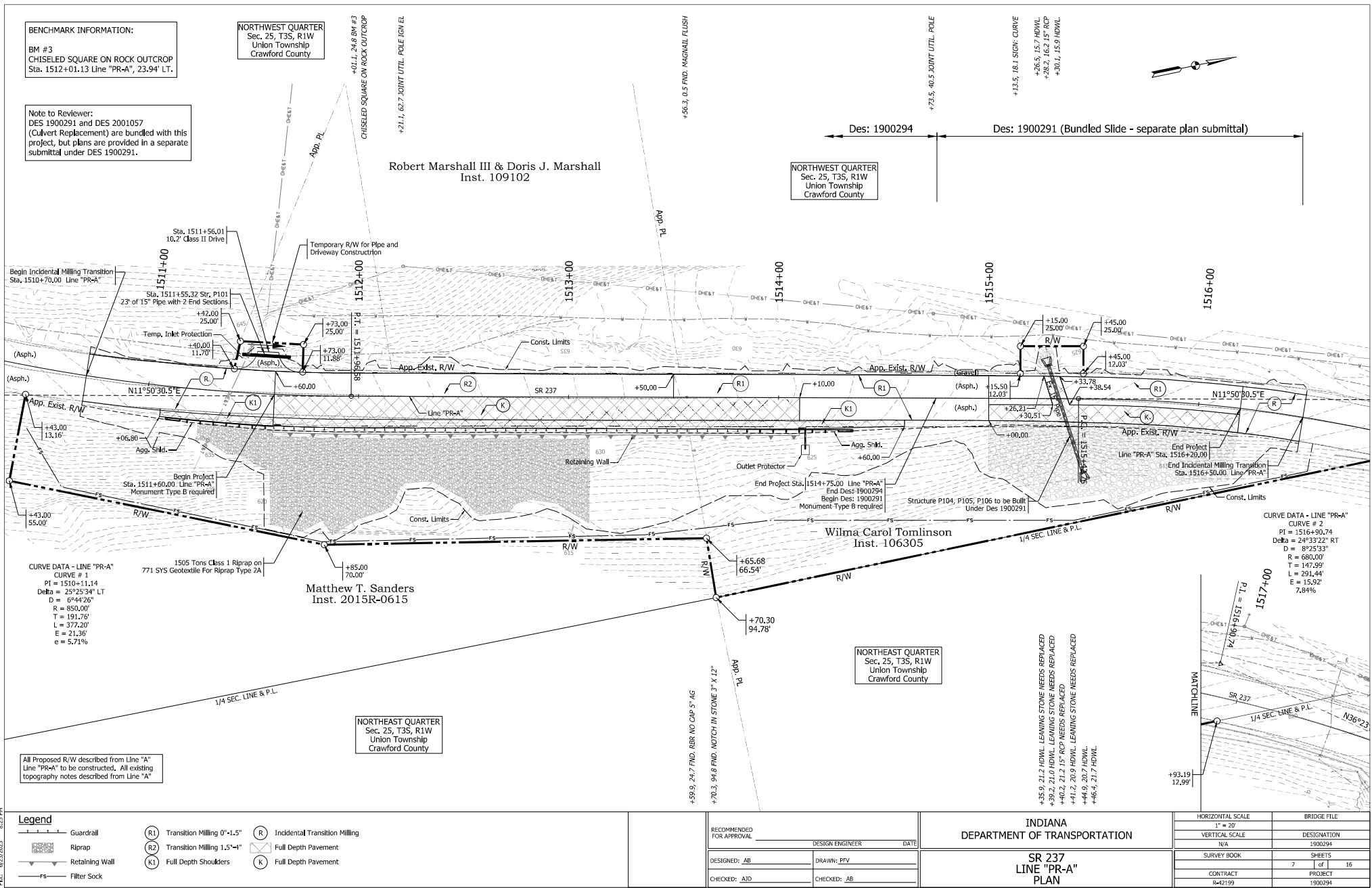
Note to Reviewer:
DES 1900291 and DES 2001057
(Culvert Replacement) are bundled with this
project, but plans are provided in a separate
submittal under DES 1900291.

Robert Marshall III & Doris J. Marshall
Inst. 109102

NORTHWEST QUARTER
Sec. 25, T3S, R1W
Union Township
Crawford County

Des: 1900294

Des: 1900291 (Bundled Slide - separate plan submittal)



All Proposed R/W described from Line "A"
Line "PR-A" to be constructed. All existing
topography notes described from Line "A"

Legend

- Guardrail
- Riprap
- Retaining Wall
- Filter Sock
- (R1) Transition Milling 0'-1.5'
- (R2) Transition Milling 1.5'-4'
- (K1) Full Depth Shoulders
- (K2) Full Depth Pavement
- (R) Incidental Transition Milling
- (K) Full Depth Pavement

DESIGNED: AB	DRAWN: PFV
CHECKED: AJD	CHECKED: AB

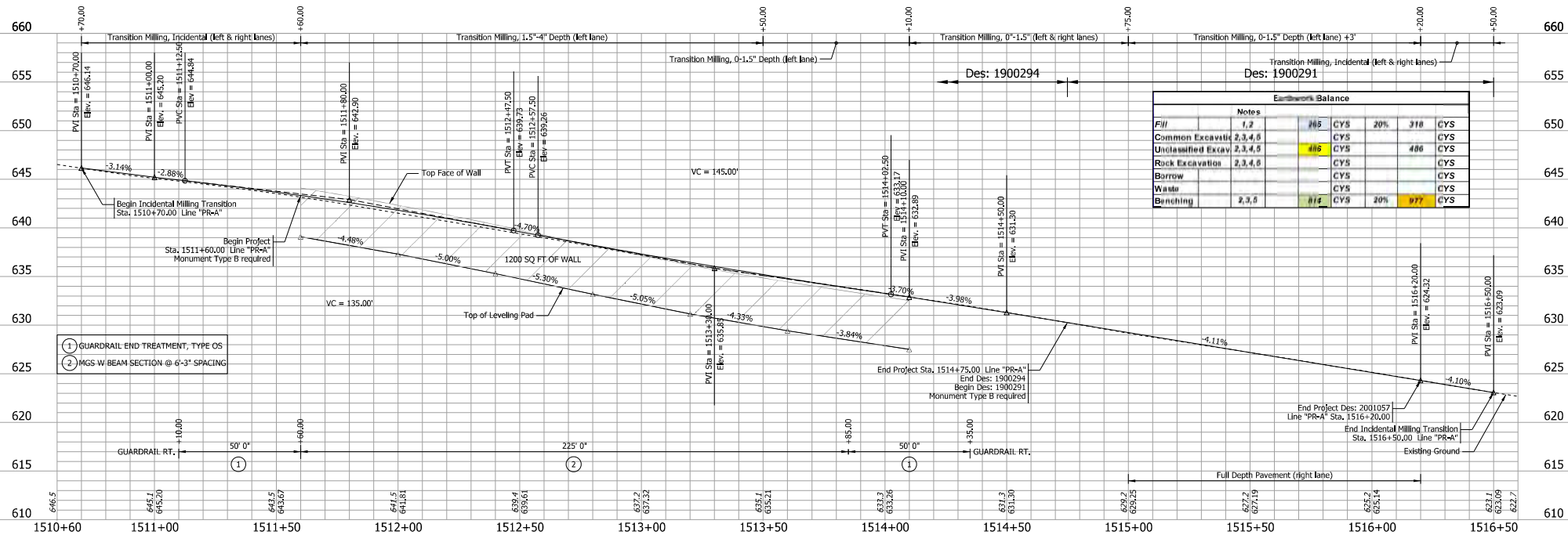
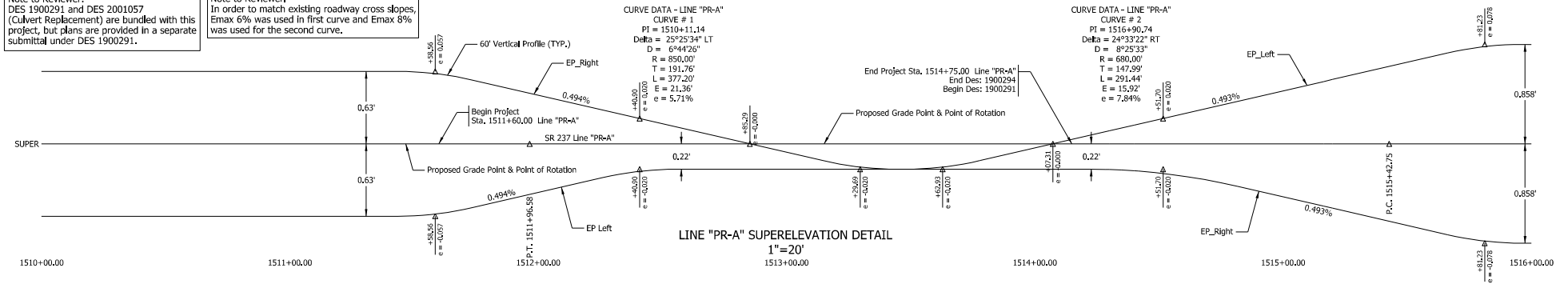
INDIANA
DEPARTMENT OF TRANSPORTATION

SR 237
LINE "PR-A"
PLAN

HORIZONTAL SCALE	BRIDGE FILE
1" = 30'	
VERTICAL SCALE	DESIGNATION
N/A	1900294
SURVEY BOOK	SHEETS
	7 of 16
CONTRACT	PROJECT
R42199	1900294

Note to Reviewer:
DES 1900291 and DES 2001057
(Culvert Replacement) are bundled with this
project, but plans are provided in a separate
submittal under DES 1900291.

Note to Reviewer:
In order to match existing roadway cross slopes,
Emax 6% was used in first curve and Emax 8%
was used for the second curve.



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Note:
All stations based on Line "PR-A"

RECOMMENDED FOR APPROVAL

DESIGN ENGINEER: _____ DATE: _____

DESIGNED BY: AB DRAWN BY: PFV

CHECKED BY: AJD CHECKED BY: AB

INDIANA DEPARTMENT OF TRANSPORTATION

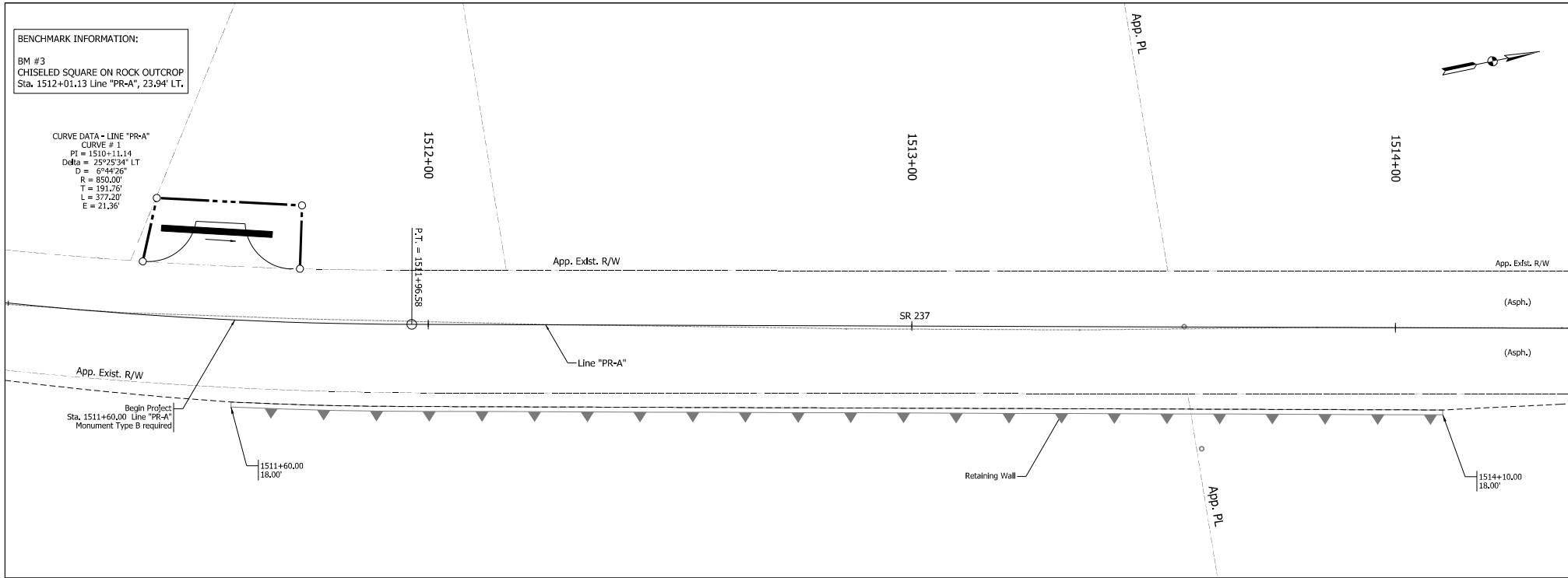
SR 237 LINE "PR-A" PROFILE AND SUPERELEVATION DIAGRAM

HORIZONTAL SCALE	BRIDGE FILE
1" = 30'	
VERTICAL SCALE	DESIGNATION
1" = 5'	1900294
SURVEY BOOK	SHEETS
	8 of 16
CONTRACT	PROJECT
R-21199	1900294

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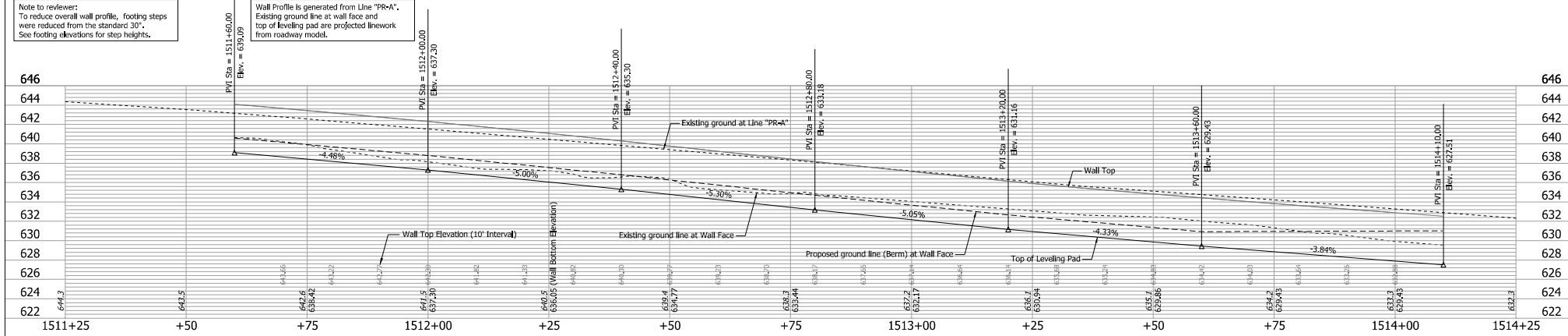
BENCHMARK INFORMATION:
 BM #3
 CHISELED SQUARE ON ROCK OUTCROP
 Sta. 1512+01.13 Line "PR-A", 23.94' LT.

CURVE DATA - LINE "PR-A"
 CURVE # 1
 PI = 1510+11.14
 Delta = 25°23'34" LT
 D = 6°44'26"
 R = 850.00'
 T = 191.75'
 L = 372.20'
 E = 21.36'



Note to reviewer:
 To reduce overall wall profile, footing steps were reduced from the standard 30".
 See footing elevations for step heights.

Wall Profile is generated from Line "PR-A".
 Existing ground line at wall face and top of leveling pad are projected line work from roadway model.



Legend
 Retaining Wall Face

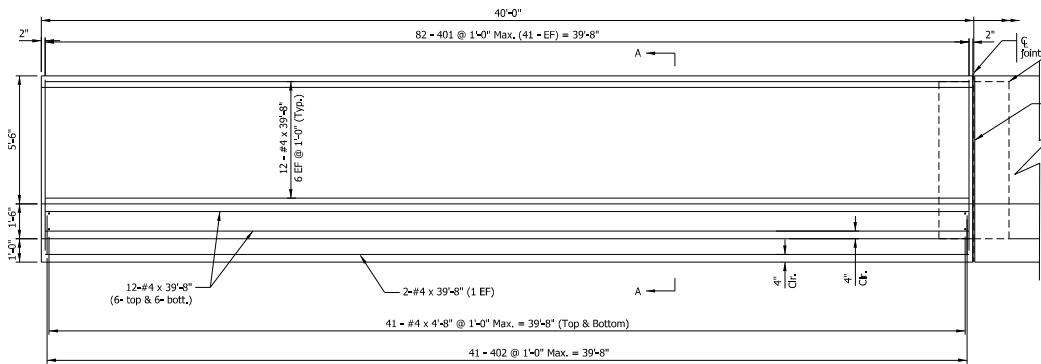
RECOMMENDED FOR APPROVAL _____
 DESIGN ENGINEER DATE _____
 DESIGNED: AB DRAWN: PFV
 CHECKED: AJD CHECKED: AB

INDIANA DEPARTMENT OF TRANSPORTATION
RETAINING WALL PLAN AND PROFILE

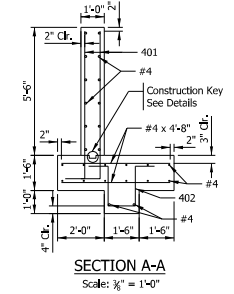
HORIZONTAL SCALE	BRIDGE FILE
1" = 10'	DESIGNATION
VERTICAL SCALE	1900294
1" = 5'	SHEETS
SURVEY BOOK	9 of 16
CONTRACT	PROJECT
R42199	1900294

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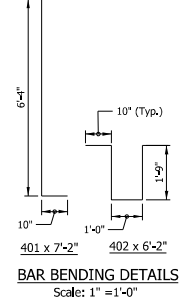
\\spp01\46301\GIS\proj_work\proj_126915\422883_30\SR237_SouthSide_Retaining Wall.dgn



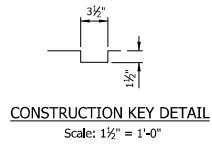
WALL ELEVATION
Sta. 1511+60.00 to Sta. 1513+60.00
(Typical 40'-0" Section - 5 Required)
Scale: 3/8" = 1'-0"



SECTION A-A
Scale: 3/8" = 1'-0"

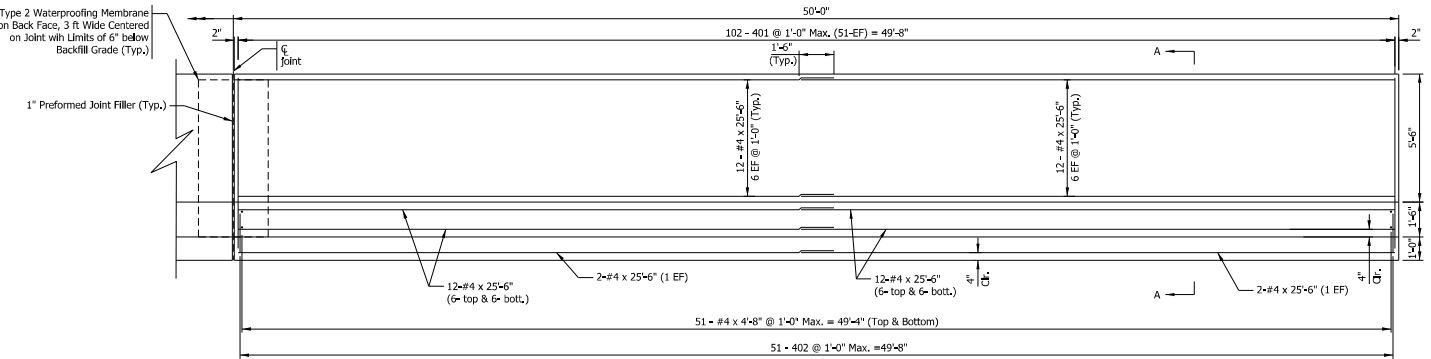


BAR BENDING DETAILS
Scale: 1" = 1'-0"

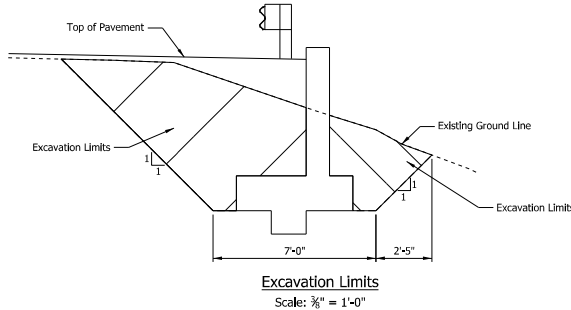


CONSTRUCTION KEY DETAIL
Scale: 1 1/2" = 1'-0"

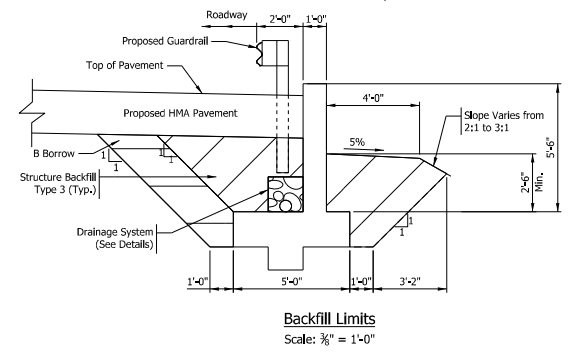
BILL OF MATERIALS			
CAST-IN-PLACE RETAINING WALL			
REINFORCING BARS			
MARK OR	NO.	LENGTH	WEIGHT
BAR	OF BARS	(FT. IN.)	(LBS.)
401	82	39.7	2484
402	41	6.7	1010
#4	256	4.0	779
#4	82	25.0	886
#4	130	12.0	441
		108 #5	8640
Total Reinforcing Bars			
CONCRETE			
Class A Concrete			52 CY'S
Class B Concrete			83 CY'S
MISCELLANEOUS			
Pipe, Type 4, Circular, 6" Dia.			250 LFT
Aggregate for Underdrains			73 CY'S
Geotextile, Type 2			1 EA
Geotextile for Underdrains, Type 2b			195 SFS



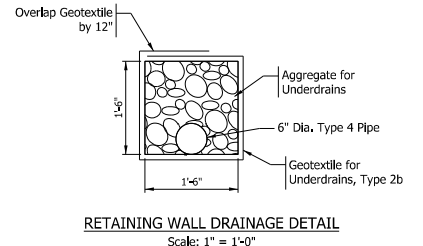
WALL ELEVATION
Sta. 1513+60.00 to Sta. 1514+10.00
(50'-0" Section - 1 Required)
Scale: 3/8" = 1'-0"



Excavation Limits
Scale: 3/8" = 1'-0"



Backfill Limits
Scale: 3/8" = 1'-0"



RETAINING WALL DRAINAGE DETAIL
Scale: 1" = 1'-0"

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE
DESIGNED: RV	DRAWN: RV	
CHECKED: MA	CHECKED: MA	

INDIANA DEPARTMENT OF TRANSPORTATION

RETAINING WALL DETAILS

SCALE	BRIDGE FILE
AS SHOWN	DESIGNATION
	1900294
DRAWING NUMBER	SHEETS
of	10 of 16
CONTRACT	PROJECT
R-42199	1900294

PAVEMENT QUANTITIES AND APPROACH TABLE

LOCATION	STATION		DESCRIPTION (APPROACH TYPE OR CLASS)	AVERAGE WIDTH		LENGTH	QC/QA-HMA, 3, 64, SURFACE, 9.5 mm (TON)	QC/QA-HMA, 3, 64, INTERMEDIATE, 19.0 mm (TON)	QC/QA-HMA, 3, 64, BASE, 25.0 mm (TON)	SUBGRADE TREATMENT, TYPE IC (SYS)	WIDENING WITH HMA, TYPE B (TON)	HMA FOR APPROACHES, TYPE B (TON)	COMPACTED AGGREGATE NO.53 (TON)	SEAL COAT, 5 (SYS)	ASPHALT FOR TACK COAT (SYS)	LIQUID ASPHALT SEALANT (LFT)	JOINT ADHESIVE SURFACE (LFT)	JOINT ADHESIVE INTERMEDIATE (LFT)	MILLING, TRANSITION, UP TO 1.5" (SYS)	MILLING, TRANSITION, UP TO 2.5" (SYS)	PAVEMENT REMOVAL (SYS)	REMARKS			
				Travel Lane*	Shoulder*	"L"																			
	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(TON)	(TON)	(TON)	(SYS)	(TON)	(TON)	(SYS)	(SYS)	(LFT)	(LFT)	(LFT)	(SYS)	(SYS)	(SYS)					
SR 237 - Line "PR-A"																									
Transition Milling, Incidental	1510+70.00	to 1511+60.00	Roadway	21.63		90.00	18								216	90	90		216						
Transition Milling, 0-1.5" Depth	1513+50.00	to 1514+10.00	Roadway	11.00		60.00	19							230	125	125			230						
	1514+10.00	to 1514+75.00		21.72		65.00																			
Transition Milling, 1.5"-4" Depth	1511+60.00	to 1513+50.00	Roadway	11.00		190.00	20	32						464	190	190	190			232					
Full Depth Shoulder Widening	1511+06.80	to 1511+60.00	Roadway		4.61	53.20	4			71	23										Right				
	1514+10.00	to 1514+60.00			3.79	50.00										97	103	103	103				Right		
Full Depth Reconstruction	1511+60.00	to 1514+10.00	Roadway	15.00	4	250.00	35	195	138	417				833	250	250	250								
Drive Construction	1511+40.62	to 1511+71.37	Class II Drive	10.10		9.00						3.3	7	15	31	31					15	Left			
Compacted Aggregate No. 53	1510+70.00	to 1514+75.00	Roadway		1.00	405.00						69	141								Left				
	1510+70.00	to 1511+06.80			3.40	36.80																		Right	
	1511+06.80	to 1511+60.00			1.50	53.20																			Right
	1511+60.00	to 1514+10.00			2.00	250.00																			Right
	1514+10.00	to 1514+75.00			2.50	65.00																			Right
				TOTAL			96	227	138	488	23	3.3	76	141	1856	789	789	543	446	232	15				

*Shoulders and Travel lane widths combined in some instances

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Des. No. 1900294

Appendix B: Graphics

B22

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____	INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE	BRIDGE FILE
	DESIGNED: AB	DRAWN: PFV	VERTICAL SCALE	DESIGNATION
CHECKED: AJD	CHECKED: AB	SUMMARY OF QUANTITIES		N/A
			N/A	1900294
			SURVEY BOOK	SHEETS
				11 of 16
			CONTRACT	PROJECT
			R42199	1900294

LOCATION		W-BEAM GUARDRAIL LENGTH													CURVED W-BEAM GUARDRAIL SYSTEM				REMARKS					
FROM STATION	TO STATION	LEFT MEDIAN LEFT	LEFT MEDIAN RIGHT	RIGHT	STANDARD POST AT 6 FT 3 IN. SPA.	TOP MOUNTED POST AT 6 FT 3 IN. SPA.	STANDARD POST AT 3 FT 1.5 IN. SPA.	DOUBLE FACED AT 6 FT 3 IN. SPA.	DOUBLE FACED AT 3 FT 1.5 IN. SPA.	SHOP CURVED AT _____ FT. SPA.	NESTING GUARDRAIL	GUARDRAIL FLARE RATE	GUARDRAIL TRANSITION (41.57) TYPE MIS/NO CURB	GUARDRAIL TRANSITION (37.5) TYPE MIS/HEIGHT	GUARDRAIL M/S; STRUCTURE TOP-MOUNTED POST	GUARDRAIL END TREATMENT TYPE OS	GUARDRAIL M/S; STRUCTURE, TOP-MOUNTED POST	TERMINAL SYSTEM	CONNECTOR SYSTEM	GUARDRAIL REMOVE	GUARDRAIL END TREATMENT REMOVE			
LFT	LFT	LFT	LFT	LFT	LFT	LFT	LFT	LFT	LFT	LFT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	TYPE	EACH	TYPE	EACH	LFT	EACH	
1511+10.00	1514+35			X	225.00											2								
TOTALS					225.00											2								

MONUMENT TABLE		
STATION	OFFSET	MONUMENT
1511+60.00	0'	"b"
1514+75.00	0'	"b"

R/W MARKER TABLE	
STATION	OFFSET
1510+43.00	13.16' RT
1510+43.00	55.00' RT
1511+85.00	70.00' RT
1513+65.68	66.54' RT
1513+70.30	94.78' LT
1516+93.19	12.99' LT

SUMMARY OF QUANTITIES													
ITEM	CONSTRUCTION	ENGINEERING	MOBILIZATION AND DEMOBILIZATION	CLEARING RIGHT OF WAY	STRUCTURE BACKFILL, TYPE 3	MONUMENT, II	REBAR, CLASS 1	GEOTEXTILE FOR RIPRAP TYPE 2A	MOBILIZATION AND DEMOBILIZATION FOR SEEDING	RECYCLER	SEED MIXTURE, R	MULCHING MATERIAL	RED-OXIDE, A
	LS	LS	LS	CYS	EACH	TON	SYS	EACH	TON	LIB	TON	MOI	MOI
TOTAL	1	1	1	297	2	1100	1456	1	0.01	6.11	0.12	6.00	

PAVEMENT MARKINGS SUMMARY TABLE		
LOCATION	LINE, PAINT	
	SOLID WHITE	SOLID YELLOW
	6 in	6 in
Sta. 1510+70.00 to Sta. 1514+75.00	810	810
TOTALS	810	810

STRUCTURE NUMBER	LOCATION				SIZE	DESCRIPTION	LENGTH		SKEW	TOP OF CASTING		COVER		FLOW LINE		SERVICE LIFE	SITE DESIGNATION	PI	BACKFILL METHOD	STRUCTURE BACKFILL	TYPE	FLOWABLE BACKFILL	TYPE	GEOTEXTILE FOR RIPRAP TYPE 2A	REINFORCEMENT RIPRAP	SCOUR PROTECTION			PIPE REMOVE	CATCH BASIN REMOVE	PIPE END SECTION	GRATED BOX END SECTION		SAFETY METAL END SECTION		CONNECT TO STR.	REMARKS							
	STATION	LEFT	RIGHT	CROSS			OFFSET	PIPE TYPE		MANHOLE, INLET, CATCH BASIN, OR SPECIALTY STRUCTURE AND TYPE	LFT	LFT	ELEV.	LFT	ELEV.											UP STREAM	DOWN STREAM	SUMP DEPTH				GEOTEXTILE	RIPRAP	LFT	EA.			EA.	TYPE	SLOPE	EA.	TYPE	SLOPE	EA.
	Line "PR-A"						FT	IN.																				IN.				SYS.	TYPE	TONS										
P101	1511+55.32	X			18,15	15	3	23						640,08	639,66				1	4	3					5				22														
							3	23											1	4	3					5				22														

RECOMMENDED FOR APPROVAL _____	DESIGN ENGINEER _____	DATE _____
DESIGNED: AB	DRAWN: PFV	
CHECKED: AJD	CHECKED: AB	

INDIANA DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

HORIZONTAL SCALE	BRIDGE FILE
VERTICAL SCALE	DESIGNATION
	1900294
SURVEY BOOK	SHEETS
	12 of 16
CONTRACT	PROJECT
R-42199	1900294

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