DEPARTMENT OF THE ARMY PERMIT

Permittee: Indiana Department of Transportation

Permit Number: LRL-2011-41

Issuing Office: U.S. Army Engineer District, Louisville

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: To discharge 34,154 cubic yards (cys) of fill material below the Ordinary Highway Water Mark (OHWM) of 88,462 linear feet of Dowden Branch, Black Ankle Creek, Dry Branch, Plummer Creek, Mitchell Branch, Indian Creek, and unnamed tributaries to Doans Creek, Dowden Branch, Bogard Creek, Flyblow Branch, Black Ankle Creek, Plummer Creek, Dry Branch, Little Clifty Branch, Little Indian Creek, Mitchell Branch, Indian Creek, and Clear Creek. In addition, 190,215 cys of fill material would be discharged into 9.42 acres of open water and emergent, scrub-shrub, and forested wetlands to construct 18 crossings of "waters of the United States (U.S.)" for the construction of Section 4 of the Interstate 69 extension. The road would begin east of the intersection of County Road 200 East and State Route 58 in Greene County and continue for approximately 26.7 miles to terminate east of the intersection of Victor Pike and State Route 37 in Monroe County, Indiana. The fill material would consist of clean earthen fill, limestone riprap, and concrete.

Project Location: The project is located on the Dowden Branch, Black Ankle Creek, Dry Branch, Plummer Creek, Mitchell Branch, Indian Creek, and unnamed tributaries to Doans Creek, Dowden Branch, Bogard Creek, Flyblow Branch, Black Ankle Creek, Plummer Creek, Dry Branch, Little Clifty Branch, Little Indian Creek, Mitchell Branch, Indian Creek, and Clear Creek in Greene and Monroe Counties, Indiana (Latitude 39.0290 North/ Longitude -86.69300 West).

Permit Conditions:

General Conditions:

1. The time limit for completing the authorized activity ends on **October 1, 2017**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification from this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.

Special Conditions:

1. The permittee shall provide on-site mitigation in accordance with the "I-69 Section 4 Water Resource Mitigation and Monitoring Plan," dated September 22, 2011 and updated March 5, May 15, and May 16, 2012. On-site mitigation shall consist of the use of natural stream design in the relocation of 888 linear feet of Plummer Creek, 473 linear feet of Black Ankle Creek, 408 linear feet of an unnamed tributary to Mitchell Branch, and 1,398 linear feet of an unnamed tributary to Clear Creek. In addition, the permitee shall mitigate impacts to a total of 8,166 linear feet of 2 intermittent streams and 11 ephemeral streams which shall be accomplished partly through the installation of step pools for grade control and the placement of natural substrate in the relocated portions of these streams.

2. The permittee shall provide 85,500 linear feet of stream and 114.89 acres of wetland mitigation to include 18.4 acres of emergent, 8.43 acres of scrub-shrub, and 71.96 acres of forested wetland and preserve 12,750 linear feet of ephemeral stream in accordance with the "I-69 Section 4 Water Resource Mitigation and Monitoring Plan," dated September 22, 2011 and updated March 5, May 15, and May 16, 2012. Out of the provided wetland mitigation, a minimum of 9.8 acres of emergent, 0.57 acre of scrub-shrub, and 7.25 acres of forested wetland must be determined to be successful.

3. The permittee shall monitor the mitigation sites annually for a period of ten years. This monitoring shall include annual stream monitoring, using the Headwater Habitat Evaluation Index (HHEI) or the Qualitative Habitat Evaluation Index (QHEI), as appropriate for the size of the stream, at the mitigation sites. The annual survey data should be collected at the same time each year, selected during the June-September period, at each mitigation stream reach. The survey should be designed to be readily comparable from year to year. The permittee shall submit monitoring reports to the U.S. Army Corps of Engineers, Indianapolis Regulatory Office, by December 31 every year of monitoring.

4. If 30 percent of the survey channel segments at the mitigation sites fail to maintain at least their original length in linear feet and to achieve a HHEI/QHEI score of at least 40 during any annual monitoring event, adaptive management/corrective actions shall be proposed, assessed, approved by the U.S. Army Corps of Engineers, and performed.

5. The permittee shall permanently protect the mitigation areas by recording restrictive covenants or conservation easements approved by the Corps in the appropriate county recorders' offices. A draft copy of the deed restriction or conservation easement for each mitigation area shall be submitted within 90 days of the issuance of this Department of the Army permit for Corps review and approval. A signed and recorded copy of each approved instrument shall be submitted to the Corps within 30 days following notification from the Corps of its approval. The Corps shall be notified in writing prior to the transfer of any mitigation site to another entity or individual.

6. The permittee's responsibility to complete the required compensatory mitigation as set forth in the above listed special conditions shall not be considered fulfilled until it has demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers.

7. This Corps permit does not authorize you to take an endangered species, in particular the Indiana bat (*Myotis sodalis*). In order to legally take a listed species, you must have separate authorization under the ESA (e.g., an ESA Section 10 permit, or a BO under ESA Section 4, with "incidental take" provisions with which you must comply). The enclosed USFWS BO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also

specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

8. The enclosed Memorandum of Agreement (MOA) between the FHWA and the Indiana SHPO includes measures to be implemented in order to take into account the effect of the project on historic properties. Your authorization under this Corps permit is conditional upon your compliance with all of the terms and conditions associated with the MOA and any future modifications, which are incorporated by reference in this permit. Failure to comply with the MOA would constitute non-compliance with your Corps permit.

9. The enclosed Karst Agreement between INDOT, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and U.S. Fish and Wildlife Service includes measures to be implemented in order to minimize the effect of the project on karst features. Your authorization under this Corps permit is conditional upon your compliance with all of the terms and conditions associated with the Karst Agreement and any future modifications, which are incorporated by reference in this permit. Failure to comply with the Karst Agreement would constitute non-compliance with your Corps permit.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give you favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Nat Sax — 10. 1. 2012

(PERMITTEE) *(DATE)*

Nathan Saxe

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

for: _____ 10/1/12

LUKE T. LEONARD
COLONEL, CORPS OF ENGINEERS
(COMMANDER AND DISTRICT ENGINEER) (DATE)

Laban C. Lindley

BY: Laban C. Lindley
Team Leader
Indianapolis Regulatory Office

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) *(DATE)*

CELRL-OP-FN
Application LRL-2011-41

MEMORANDUM FOR RECORD

SUBJECT: Department of the Army Environmental Assessment and Statement of Finding for Above-Numbered Permit Application

This document constitutes the Environmental Assessment, 404(b)(1) Guidelines Evaluation, Public Interest Review, and Statement of Findings.

1. Proposed project.

   a. Application as described in the public notice. [Note: the information contained in this section reflects the text of the public notice as issued. Changes to the project or information not contained in the public notice are reflected in subsection 1.b. below.]

   APPLICANT: Indiana Department of Transportation
   100 North Senate Avenue, Room N642
   Indianapolis, Indiana 46204

   AGENT: Bernardin Lochmueller and Associates, Inc.
   6200 Vogel Road
   Evansville, Indiana 47715

   LOCATION: On the White River, Plummer Creek, Indiana Creek, Clear Creek and their tributaries in Greene and Monroe Counties, Indiana.

   Latitude: 39.0290
   Longitude: -86.6930
   7.5 Minute Quads: Scotland, Koleen, Owensburg, Stanford, and Clear Creek, Indiana

   PURPOSE: To construct stream and wetland crossings on Section 4 of the proposed Evansville to Indianapolis extension of Interstate 69.

   DESCRIPTION OF WORK: The applicant proposes to discharge 34,154 cubic yards (cys) of fill material below the Ordinary High Water Mark (OHWM) of 93,538 linear feet of Dowden Branch, Black Ankle Creek, Dry Branch, Plummer Creek, Mitchell Branch, Indian Creek, and unnamed tributaries to Doans Creek, Dowden Branch, Bogard Creek, Flyblow Branch, Black Ankle Creek, Plummer Creek, Dry Branch, Little Clifty Branch, Little Indian Creek, Mitchell Branch, Indian Creek, and Clear Creek. In addition, 190,215 cys of fill material would be discharged into 9.42 acres of open water and emergent, scrub-shrub, and forested wetlands to construct 18 crossings of "waters of the United States (U.S.)" for the construction of Section 4 of the Interstate 69 extension. The road would begin east of the intersection of County

Road 200 East and State Route 58 in Greene County and continue for approximately 26.7 miles to terminate east of the intersection of Victor Pike and State Route 37 in Monroe County, Indiana. The fill material would consist of clean earthen fill, limestone riprap, and concrete.

AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES: Impacts to streams and wetlands were unavoidable considering that the proposed project involves constructing 26.7 miles of a new 4-lane interstate.

The applicant prepared a Final Environmental Impact Statement which considered impacts from five different alignments. The preferred alternative for the entire 26.7-mile corridor had fewer impacts to streams and wetlands than 3 of the other 4 alternatives. Impacts to streams and wetlands were avoided and minimized to the greatest extent possible.

Mitigation would be required to compensate for the proposed impacts to the streams and wetlands located on the site. The applicant proposes to mitigate for impacts both on-site and off-site. The applicant would use natural stream design on-site to mitigate for relocation impacts to 888 linear feet of Plummer Creek, 473 linear feet of Black Ankle Creek, 408 linear feet of an unnamed tributary to Mitchell Branch, and 1,398 linear feet of an unnamed tributary to Clear Creek. In addition, the applicant would mitigate impacts to a total of 8,166 linear feet of 2 intermittent streams and 11 ephemeral streams through the installation of step pools for grade control and the placement of natural substrate in the relocated portions of these streams that would be roadside ditches.

The applicant proposes to provide off-site mitigation through restoration/ creation/enhancement at sixteen sites and preservation at one site. A total of 79,018 linear feet of stream, consisting of 39,580 linear feet of perennial, 7,895 linear feet of intermittent, and 31,543 linear feet of ephemeral, would be restored or enhanced at the 16 sites. In addition, the applicant would create or restore 11.2 acres of emergent, 1.63 acres of scrub/shrub, and 83.6 acres of forested wetlands at these 16 sites. The applicant is proposing to use 24 acres of the total restored forested wetlands as out-of-kind mitigation for impacts to 24,000 linear feet of ephemeral streams. The applicant is proposing to preserve approximately 12,750 linear feet of ephemeral streams along with their riparian corridors at the 1 preservation site.

Nine of the off-site mitigation sites are located in the Lower White 8-digit HUC watershed (05120202). These sites are the 142.5-acre May/Huebner mitigation site in Daviess County; and the 168-acre Hart site, the 260-acre Malone site, the 250-acre New Fashion Pork site, the 239.5-acre Bray site, the 116-acre Price site, the 60-acre Gray site, the 193-acre Clark/Coble site, and the 70-acre Sullivan site in Greene County, Indiana. Eight of the off-site mitigation sites are located in the Lower East Fork White River 8-digit HUC (05120208). These sites are the 30-acre Fields site,

the 158-acre Glasgow site, the 75-acre Joel Clark site, the 34-acre Holmes site, and the 179-acre Woodward site in Greene County; and the 137-acre Cornwell site, the 175-acre Elkins site, and the 88-acre Kincaid site in Monroe County, Indiana.

Public Notice No. LRL-2011-41-djd (copy attached), announcing the proposed work, was issued on 12 November 2011, with a comment period ending on 12 December 2011. Public Notice No. LRL-2011-41-A-djd, announcing an amendment to the application was also issued on 12 November 2011, with a comment period ending on 12 December 2011. The amendment to the public notice:

AMENDED DESCRIPTION OF WORK: The description of work contained in Joint Public Notice No. LRL-2011-41-djd, identified impacts to 93,538 linear feet of Dowden Branch, Black Ankle Creek, Dry Branch, Plummer Creek, Mitchell Branch, Indian Creek, and unnamed tributaries to Doans Creek, Dowden Branch, Bogard Creek, Flyblow Branch, Black Ankle Creek, Plummer Creek, Dry Branch, Little Clifty Branch, Little Indian Creek, Mitchell Branch, Indian Creek, and Clear Creek. The proposed project would actually impact 89,373 linear feet of the above-mentioned waters. All other information contained in the Public Notice remains unchanged.

b. Additional information not included in, or obtained after publication of, the Public Notice:

Overall Project Purpose: To construct 18 stream crossings to facilitate construction of Section 4 of the proposed Evansville to Indianapolis extension of Interstate 69. The National Interstate 69 Project is needed to facilitate interstate and international movement of freight through the Interstate 69 corridor. The construction of Section 4 would advance the overall goals of the Interstate 69 project, increase personal accessibility for area residents, reduce congestion, improve traffic safety, and support local economic development initiatives.

Water Dependency Determination: The construction of wetland and stream crossings is a water dependent activity. A crossing, by its very nature, is required to be in proximity to or sited within the streams and associated wetlands it is crossing.

Additional Impact Information: The proposed project would involve the permanent placement of fill into a total of 88,462 linear feet of stream. The application mistakenly included ten single span crossings of single streams that would not involve permanent placement of fill into any "waters of the U.S." (total 5,165 linear feet). This was corrected in the Public Notice amendment, changing the total linear feet of impact from 93,538 to 88,373. There was an additional data error that was not recognized until after the Public Notice and the amendment were published – one of the streams had a reported impact that included 111 linear feet of temporary fill. Correcting these errors changes the total length of stream that the project would permanently impact to 88,262 linear feet.

During a site inspection on April 6, 2012, the Corps identified a mistake in the delineation of an unnamed tributary to Doans Creek. The unnamed tributary extended approximately 200 linear feet upstream of its delineated extent. Since the impact to this stream would involve filling it to construct the road, this number was added to the total permanent impacts, resulting a total length of 88,462 linear feet of stream that would be permanently impacted.

MITIGATION MEASURES: The applicant submitted a revised and updated Water Resource Compensatory Mitigation and Monitoring Plan dated March 5, 2012 and revised May 15 and 16, 2012. In the public notice, the mitigation sites were named after the (now former) landowner and INDOT renamed the sites to remove association with former landowners. The sites are now named Veale Creek (May/Heubner), West Fork (Hart), Doans Creek (Malone), Taylor Ridge (New Fashion Pork), Black Ankle (Bray), Plummer Creek 1 (Price), Koleen (Gray), Plummer Creek 2 (Clark/Coble), Beech Creek (Sullivan), Indian Creek 2 (Fields), Indian Creek 3 (Glasgow), Indian Creek 1 (Joel Clark), Mitchell Branch (Holmes), SR 45 (Woodward), Indian Creek 4 (Cornwell), Indian Creek 5 (Elkins), and Eller (Kincaid). The total number of linear feet of stream and acres of wetland to be restored or enhanced at the 16 mitigation sites was also revised based on finalization of mitigation plans. A total of 85,500 linear feet of stream, consisting of 41,853 linear feet of perennial, 8,575 linear feet of intermittent, and 35,075 linear feet of ephemeral, would be restored or enhanced at the 16 sites. In addition, the applicant would create or restore 18.4 acres of emergent, 8.43 acres of scrub/shrub, and 71.96 acres of forested wetlands at 5 of the 16 sites. The applicant is proposing to use 30.4 acres of the total restored forested wetlands as out-of-kind mitigation for impacts to 30,400 linear feet of ephemeral streams. The linear feet of streams preserved at the preservation site has not changed from the information provided in the Public Notice. The information for the mitigation sites is summarized in the table below:

	Stream mitigation (linear feet)			Wetland mitigation (acres)		
Site name	Perennial	Intermittent	Ephemeral	Forested	Scrub-shrub	Emergent
Veale Creek	1,643	1,439		7.36	1.63	4.2
West Fork	7,960		450	35.7	6.8	2.3
Doans Creek	595		600	14.5		
Taylor Ridge			1,760			9.3
Black Ankle	3,150		6,730			
Plummer Creek	3,700		515			
Koleen		2,075	3,375			
Plummer Creek 2	6495		900	4		2.6
Beech Creek	3,380	785	3,780			
Indian Creek 2	1,180					

Indian Creek 3				2.8		
Indian Creek 1	5,275		8,539	7.6		
Indian Creek 4	3,120		4,025			
Indian Creek 5	3,570	1,211	1,313			
Eller		1,600	3,995			
Mitchell Branch	1,785	1,465				
SR 45			12,750*			
Total Restoration Creation or Enhancement	41,853	8,575	35,075	71.96**	8.43	18.4

* Preservation

** Forested wetland restoration includes acreage offered for out-of-kind mitigation for impacts to ephemeral streams: 20 acres at West Fork, 2.8 acres at Indian Creek 3, and 7.6 acres at Indian Creek 1.

EXISTING CONDITIONS: In general, Section 4 would traverse an area that is dominated by rugged terrain with gentle to very steep slopes. The terrain makes the land largely unsuitable for agriculture or commercial/residential development. The FEIS estimated that 64% of the corridor is upland habitat (primarily forest), 29% of the corridor is used for agriculture (mainly pastures); 6% of the corridor is developed for residential and commercial use; and 2% of the corridor is water, wetland, or abandoned limestone quarries. Because of the undeveloped nature of the corridor, many of the streams described in the Preliminary JD have achieved Qualitative Habitat Evaluation Index (QHEI) or Primary Headwater Habitat Evaluation Index (HHEI) scores that would qualify them as being very good quality or better. In addition to high quality streams, there are areas of karst, an important and unique feature of Southern Indiana, throughout the corridor. Karst areas are characterized by caves, sinkholes, underground streams, and other features formed by the slow dissolving of bedrock.

Section 4 of the Interstate 69 extension would begin at US 231 in Greene County, just north of the existing US 231 intersection with SR 45/SR 58. The corridor would proceed east across Doans Creek and CR 200 East. Just east of CR 215 East, the corridor would turn northeast, crossing Dowden Branch and the headwaters of Bogard Creek, continuing to Taylor Ridge. In this area, the elevation would rise along gentle to moderate slopes. Land use is primarily farmland (row crops and pasture) with interspersed woodlots and larger forest tracts.

At Taylor Ridge, the corridor turns east near Taylor Ridge Road (CR 475 East) about two miles southwest of Koleen and continues east across Black Ankle Creek, Dry Branch, and Plummer Creek. East of Mineral-Koleen Road (CR 360 South/CR 880 East) and Plummer Creek, the corridor would turn northeast, crossing SR 45, Mitchell Branch, and SR 54. Interchanges would be constructed at both SR 45 and SR 54. The land use in this section of the corridor is dominated by extensive forested tracks with rural residences along SR 45 and SR 54 and some hay fields and pastures. The terrain is rugged with steep to very steep slopes. Black Ankle Creek has a wide floodplain dominated by emergent wetland while Dry Branch, Plummer Creek, and several intermittent drainageways trend south to north across the corridor in deep, narrow valleys.

At SR 54, the proposed corridor's terrain gains elevation as it turns northeast to its southernmost crossing of Indian Creek before turning north along the Greene County/Monroe County Line. Indian Creek has a wide floodplain at this location. Some karst features are located along this part of the corridor. The corridor would continue north along the county line where it would make a second crossing of Indian Creek before turning east into Monroe County in the vicinity of Timber Trace Subdivision (Greene County) and Breeden Road (Monroe County). Just east of the county line, the corridor would make a third crossing of Indian Creek. Land use in this part of the corridor is a mix of farmland (predominantly hay fields and pasture with some row crops), rural residences, woodlots and large forest tracts, especially in the northern part of the corridor along the county line. The terrain has moderate to steep slopes.

The Section 4 corridor would continue generally east into Monroe County. Near Rockport Road, the corridor would turn northeast and continue to SR 37. The north terminus of the Section 4 corridor at SR 37 would be about one-half mile north of Victor Pike and two miles southwest of the City of Bloomington. Land use in this area is primarily forest and rural residential with some hay fields, especially between Tramway Road and SR 37. There is a light industrial area located along SR 37 near Victor Pike just south of the corridor. Active and abandoned limestone quarries and associated limestone storage/waste areas occur within and adjacent to the corridor in the vicinity of Tramway Road. There are variable terrain types ranging from gentle to steep slopes with several intermittent drainageways, some of which are located in narrow valleys. Many karst features are located throughout this part of the corridor.

The proposed crossings would be constructed on Dowden Branch, Black Ankle Creek, Dry Branch, Plummer Creek, Mitchell Branch, Indian Creek, and unnamed tributaries to Doans Creek, Dowden Branch, Bogard Creek, Flyblow Branch, Black Ankle Creek, Plummer Creek, Dry Branch, Little Clifty Branch, Little Indian Creek, Mitchell Branch, Indian Creek, Clear Creek, wetlands, and ponds.

2. Authority

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403).
☒ Section 404 of the Clean Water Act (33 U.S.C. §1344).
☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

3. Scope of Analysis.

a. NEPA. *(Write an explanation of rationale in each section, as appropriate)*

(1) Factors.

(i) Whether or not the regulated activity comprises "merely a link" in a corridor type project.
The proposed construction of Section 4 of the Interstate 69 Evansville to Indianapolis extension would include eighteen separate and complete crossings of "waters of the U.S." Each crossing would be a link in a corridor project.

(ii) Whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity.
The proposed crossings are part of a proposed Interstate highway. The alignment of the highway in the immediate vicinity of the crossings does affect the location and configuration of the crossings. The road in the immediate vicinity of the regulated activity was designed to avoid and minimize impacts to "waters of the U.S." to the greatest extent possible in consideration of all public interest factors.

(iii) The extent to which the entire project will be within the Corps jurisdiction.
The portion of the project that is within the Corps' jurisdiction will include jurisdictional "waters of the U.S." that would be filled, directly or indirectly, by the construction of each separate and complete crossing and the immediate adjacent riparian corridor. The CWA does not provide the Corps legal authority to regulate interstate highway projects, such as the proposed Interstate 69 Evansville to Indianapolis extension, beyond the limits of the "waters of the U.S." Overall responsibility for the construction and approval of interstate highway projects is the responsibility of the Federal Highways Administration (FHWA).

(iv) The extent of cumulative Federal control and responsibility.
The project is a federal project. As stated above, overall responsibility for the construction and approval of interstate highway projects is the responsibility of the Federal Highways Administration (FHWA). FHWA has conducted a tiered NEPA review process for the proposed Interstate 69 Evansville to Indianapolis extension. As part of this tiered NEPA review process FHWA: prepared a Tier I Environmental Impact Statement (EIS) that evaluated whether or not to build the proposed Evansville to Indianapolis extension and alternative corridors for the proposed extension; issued a Record of Decision (ROD) for the Tier I EIS that approved a build alternative, the Alternative 3C corridor; prepared a Tier II EIS for Section 4 of the proposed Interstate 69 extension that evaluated different alignments for Section 4 within the Alternative 3C corridor; and issued a ROD for the Tier II EIS approving the Refined Preferred Alternative, the alternative associated with the proposed crossings, for Section 4 of the Interstate 69

Evansville to Indianapolis extension.

(2) Determined scope.
☒ Within the footprint of the regulated activity within the delineated water and the affected upland area.
☐ Over entire property. *Explain.*

b. NHPA "Permit Area".

(1) Tests. Activities outside the waters of the United States, the location of which is determined by the location of each separate and complete crossing, ☒are/☐are not included because all of the following tests ☒are/☐are not satisfied: (box is checked if test is satisfied) ☒ Such activity would not occur but for the authorization of the work or structures within the waters of the United States; ☒ Such activity is integrally related to the work or structures to be authorized within waters of the United States (or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program); and ☒ Such activity is directly associated(first order impact) with the work or structures to be authorized. *Explain.* The location and configuration of some of the activities that would occur outside the "waters of the U.S." would be determined by the location and configuration of the stream crossings. As a result, these activities would meet all three tests; and therefore, they are considered in the NHPA "Permit Area."

Activities outside the waters of the United States the location of which is not determined by the location of each separate and complete crossing ☐are/☒are not included because all of the following tests ☐are/☒are not satisfied: (box is checked if test is satisfied) ☐ Such activity would not occur but for the authorization of the work or structures within the waters of the United States; ☒ Such activity is integrally related to the work or structures to be authorized within waters of the United States (or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program); and ☐ Such activity is directly associated (first order impact) with the work or structures to be authorized. *Explain.* The proposed crossings are part of a linear project. As such, the location and configuration of each separate and complete crossing would only determine the location and configuration of activities outside "waters of the U.S." that are in proximity to a crossing. Beyond a certain distance, the location and configuration of activities outside "waters of the U.S." may be modified without modifying the crossing. These activities would not meet all three tests; therefore, those activities are not considered in the NHPA "Permit Area."

(2) Determined scope. *Describe.* The portion of the Right of Way (ROW) immediately adjacent to the crossing that encompasses the approaches of the crossing is within the Corps' NHPA "Permit Area." The configuration of this portion of the ROW typically is determined by the location of the crossing.

c. ESA "Action Area".

(1) Action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

(2) Determined scope. *Describe.* The federal action for the purposes of this decision is the eighteen proposed crossings. The proposed crossings and the upland area around them that would be impacted directly or indirectly by the construction of the crossings are the ESA "Action Area." The FHWA has overall responsibility for construction of Section 4 of the proposed Interstate 69 extension. The areas directly and indirectly affected by the overall construction of Section 4 are within FHWA's "Action Area."

d. Public notice comments. ☐ NA

(1) The public also provided comments at ☐public hearing, ☐public meeting, and/or ☐ *Explain.*

(2) Commenters and issued raised.

Name	Issue
Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology	It's unlikely that any activities requiring a Section 404 CWA permit would have direct or indirect effects on above-ground historic properties. There is a signed MOA for archaeological investigations for Section 4 – seven creek crossings require Phase Ic subsurface investigations. SHPO has received archaeological investigations for 14 of the 16 mitigation sites.
U.S. Environmental Protection Agency	Declared that on-site mitigation for ephemeral and intermittent streams is inappropriate. Provided comments concerning mitigation and requested changes based on those comments. State that the project is not in compliance with CWA 404(b)(1) Guidelines because the mitigation plan is inadequate to compensate for impacts.
Andrew B. Armstrong, Environmental Law and Policy Center, on behalf of Hoosier Environmental Council (HEC) and Citizens for Appropriate Rural Roads (CARR)	Objected to issuing permit since a less-damaging practicable alternative exists, the US 41/Interstate 70 alternative rejected during Tier I of the NEPA process because FHWA determined that it was not practicable. Stated that the Corps did not review purpose and need. Objected to permitting Interstate 69 by section. Requested public hearing because the proposed project has significant land use and environmental/water quality impacts.
Tim Maloney, HEC	Objected to tiered and segmented NEPA approach; and to the impacts to forest, wildlife and wildlife habitat, state-listed species, karst features, surface waters, floodplains, energy, recreation, educational/scientific features, and aesthetic values. Expressed concern about the sufficiency of FHWA's NEPA documentation, the quality of fill material, and the adequacy of mitigation for forest and

	wildlife impacts. Objected to the USFWS Tier I and Tier II Section 4 Biological Opinions. Stated that impacts to streams and wetlands in project area could be avoided and that the Corps should complete independent analysis of alternative routes and evaluation of the least environmentally damaging practicable alternative. Requested public hearing.
Jawn J. Bauer, Bauer and Densford Attorneys at Law, representing Fern Hills Club, Inc.	Fern Hills Club, Inc. opposes the application because of impacts on forest, watersheds, noise and air pollution, and increase in development. The club is a nudist club. Their current location is shielded from the "outside world" by ridges and tree coverage. The proposed project would remove the shielding and destroy the business.
Citizens for Appropriate Rural Roads	Inappropriate to use regional general permit for Section 4. Should allow general public to comment on individual stream impacts. Some stream crossings are not included in permit application. Concerned about impacts to karst features. Mitigation measures not adequate. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Carol Posgrove	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Sarah Clevenger	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Meri Reinhold	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Sam Parsons	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Clark Sorensen	Inappropriate to "bundle" Section 404 CWA permits. Environmental issues "demand close individual review for permitting."
Jack R. Saylor	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Holly Joy	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.

Stephen Hale	Inappropriate to use regional general permit for Section 4.
Allana Radecki and Jeffrey Morris	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
"Brawny"	Forwarded CARR's mass e-mail requesting members comment on the project and listing "talking points."
John Loflin	Inappropriate to use regional general permit for Section 4.
Audrey Moore	Inappropriate to use regional general permit for Section 4.
Jeanne Melchior	Concerned about impacts to karst features, wells, wetlands, endangered species, navigable waterways.
Cynthia Roberts	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Mitigation measures inadequate.
Ramon T. Roman	Opposed to the Corps issuing "blanket permit" for Section 4.
Greg Alexander	Concerned about impacts to water quality, rural land, karst features.
Antonia Matthew	Requests public hearing because of impacts to karst feature and to allow public comment on mitigation.
Michael Berndt	Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Bob Flynn	Inappropriate to use a general permit for Section 4. Concerned about impacts to environmentally sensitive areas.
Jeanne Leimkuhler	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge. Mitigation measures inadequate.
Tom Hougham	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Donald Rowan Harris	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge.
Alysia Fornal	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Inappropriate to issue permit since Interstate 69 is undergoing a legal challenge. Mitigation measures inadequate.
Brian Garvey	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features. Concerned about runoff impacts.
Jan Boyd	Requests public hearing. Public Notice did not include streams that are on her property so there are impacts missing in the application.

David N. Parsons	Inappropriate to use a general permit for Section 4. Concerned about impacts to karst features.
William A. Boyd	Requested public hearing. Public Notice did not include streams that are on his property so there are impacts missing in the application. Concerned about increased flooding on his property. Mitigation for impacts to wetlands inadequate. Concerned about contamination from runoff. Objects to issuing permit because culvert Hydraulic Analysis has not been completed. Objected to issuing permit since a less-damaging practicable alternative exists, the US 41/Interstate 70 alternative rejected during Tier I of the NEPA process because FHWA determined that it was not practicable. Concerned about indirect impacts on air quality and water quality. Requested further air quality analyses. Concerned about quality of Section 106 studies. Concerned about substrate quality, ability of the ground to support a highway. Concerned about quality of fill. Concerned about impacts during construction. Concerned about viability of highway considering "steep grades" including several grades that would be 3% or greater – grades would decrease gas mileage so much that interstate trucking concerns would not use Interstate 69. Also concerned about safety on highway with such steep grades. Concerned about emergency response process for accidents on Interstate 69. Concerned about adverse effect on "peace and serenity" of the National Historic Registry-listed Scotland Hotel and the National Historic Registry-eligible Blackmore Store. Challenges the data for the sound measurements at the Scotland Hotel and Blackmore Store. Impacts from proposed development at the US 231/Interstate 69 interchange should be included in evaluations as an indirect impact. Concerned about impacts on Amish community, does not agree with the Section 106 findings. INDOT has not accounted for financial costs to residents. Concerned about lack of a comprehensive study of indirect impacts to the economics of surrounding communities. Concerned about impacts to karst features. Concerned about the Class V Injection Well in one of the project's contracts, Corps should allow for public comment and review of USEPA's Class V Injection Well permit prior to issuing 404 CWA.
Samuel E. Flenner III	Objected to issuing permit since a less-damaging practicable alternative exists, the US 41/Interstate 70 alternative rejected during Tier I of the NEPA process because FHWA determined that it was not practicable. Proposed mitigation is inadequate.
Richard Vonnegut	Objected to "grouping of four rivers' permits into one."

	Concerned about impacts to karst features. Requested public hearing for "each of the streams in the permitting process."

The letter received from each of these commenters is located in the administrative record. Twenty of the comments objected to the use of a "general permit" for Section 4. All of the impacts from Section 4 are being evaluated in this document, there have been and will be no impacts from Section 4 verified under Indiana Regional General Permit 1. These commenters were misinformed. In response to comments from William and Jan Boyd, District personnel investigated the streams that Mr. and Mrs. Boyd claimed were mis-delineated on April 6, 2012 and found that Stream Impact #3 extended approximately 200 linear feet upstream of where the upstream end was originally delineated. As a result, 200 linear feet of impact was added to the length originally listed in the application for Stream Impact #3. The evaluation of the proposed project for the permit decision included this additional impact.

Of the 32 electronic mail messages received in response to the public notice, 15 were variations on a template letter that was provided by Citizens for Appropriate Rural Roads. Six of the electronic mail messages included requests for a public hearing.

(3) Site ☒was/☐was not visited by the Corps to obtain information in addition to delineating jurisdiction. *Include dates and synopsis of information gathered if site was visited.* Site inspections of the Section 4 project corridor were conducted on July 25, 2011, and April 5, 2012. In general, Section 4 would traverse an area that is mainly forested with some agricultural areas that are used for pasture or row crops. Crossings 1 and 2, in the southern-most part of the corridor, would impact streams that are in forested areas. These forested areas are somewhat fragmented and are surrounded by agricultural fields. The terrain from Crossing 3 to Crossing 8 becomes a lot more hilly and the area contains large forest tracts that are interrupted by only a few small agricultural or residential areas. From Crossing 9 to Crossing 18, the forests become much more fragmented. The majority of the stream impacts are within forested areas. The streams generally have large riparian corridors. Because of the hilly nature of the corridor, there are not many wetlands.

(4) Issues identified by the Corps. *Describe.* No issues were identified.

(5) Issues/comments forwarded to the applicant. ☐NA/☒Yes.

Comments were forwarded to the applicant to give the applicant an opportunity to respond to comments on December 13 and 20, 2011.

(6) Applicant replied/provided views. ☐NA/☒Yes.

Electronic mail messages were received from the applicant responding to the comments on April 9 and May 8, 2012.

(7) The following comments are not discussed further in this document as they are outside the Corps purview. ☒ NA/☐ Yes *Explain.*

4. Alternatives Analysis.

a. Basic and Overall Project Purpose (as stated by applicant and independent definition by Corps).
☒Same as Project Purpose in Paragraph 1.
☐Revised: *Insert revised project purpose here and explain why it was revised.*

b. Water Dependency Determination:
☒Same as in Paragraph 1.
☐Revised: *Insert revised water dependency determination here if it has changed due to changing project purpose or new information.*

c. Applicant's preferred alternative site and site configuration.
☒Same as Project Description in Paragraph 1.
☐Revised: *Explain any difference from Paragraph 1*

Criteria. Activities were evaluated based on their ability to meet the purpose and need of the project, impacts on aquatic resources, impacts on other environmental resources, and practicability.

Issue	Measurement and/or constraint
Wetland impacts	Acres of impact
Stream impacts	Linear feet of impact
Impacts to other sensitive environmental resources	The extent of unavoidable impacts to these resources
Purpose and Need	Whether the purpose and need are satisfied
Impacts to Historic Resources	The extent of unavoidable impacts to these resources
Upland forests	Acres of impact
Core forests	Acres of impact
Floodplains	Acres of impact
Farmlands	Acres of impact

d. Off-site locations and configuration(s) for each.

Off-site locations and configurations

Description	Comparison to criteria
Alternatives in Tier I EIS	See discussion below

To accommodate the large, complex scope of the Interstate 69 Evansville to Indianapolis extension project, the FHWA used a "tiered" environmental process pursuant to NEPA, 42 U.S.C. §4321 *et seq.*; the NEPA regulations issued by the Council on Environmental Quality, 40 C.F.R. Part 1500; and the FHWA's NEPA regulations, 23 C.F.R. Part 771. For the Interstate 69 extension, the tiered process involved two levels of NEPA review – Tier I

and Tier II. The Tier I review looked at alternative corridors and the "no build" alternative for the proposed Interstate 69 extension between Evansville and Indianapolis, Indiana and identified a preferred alternative corridor. The Tier II review looked at alternative alignments, including the "no build" alignment, within 6 sections of the approved corridor. The alternative corridors in Tier I are considered the off-site locations for the proposed project.

The following paragraph provides a summary of the alternatives identified and evaluated by FHWA during the Tier I NEPA review for the Interstate 69 Evansville to Indianapolis extension. A detailed discussion of these alternatives is contained in the Tier I Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) prepared by FHWA.

For the Tier I review, FHWA prepared an FEIS, which included a 404(b)(1) consistency analysis, for the proposed Interstate 69 extension between Evansville and Indianapolis, Indiana that evaluated 12 alternative corridors and the "no build" alternative. FHWA identified 19 route concepts during the scoping process for initial analysis. From these 19 route concepts 5 routes were identified. The 12 alternative corridors evaluated represented different options located within the 5 routes. Of the 12 alternative corridors 8 were ultimately determined not to be practicable alternatives. Four of those alternative corridors were determined not to be practicable because they involved unavoidable impacts to sensitive environmental resources. The other 4, including the corridor that utilized the existing US Route 41 and Interstate 70, were determined not to be practicable because they failed to satisfy project goals (particularly core goals) and, thereby, the purpose and need for the Interstate 69 Evansville to Indianapolis extension project. Of the 4 remaining alternative corridors, FHWA identified Alternative 3C as the environmentally preferred alternative – the least environmentally damaging practicable alternative. Based on the FEIS for Tier I, FHWA issued a ROD that approved one of the alternative corridors – Alternative 3C – and the termini for the 6 sections to be evaluated in Tier II. FHWA determined that each section serves an independent, significant, stand-alone transportation purpose in addition to serving as a portion of the Interstate 69 extension. Each section is designed to connect major state or federal highways in or near population or employment centers in the state.

In response to the public notice four comment letters were received that raised some issues related to the evaluation of alternatives. One issue raised was FHWA's use of a tiered environmental process for the Interstate 69 Evansville to Indianapolis extension. The decision to use a tiered process was made by FHWA. The legality of a tiered process was addressed in Hoosier Environmental Council v. U.S. Department of Transportation, No. 1:06-cv-1442-DFH-TAB, 2007 U.S. Dist. LEXIS 90840, *17-25 (S.D. Ind. Dec. 10, 2007) and the court held that the tiered process "does not violate NEPA or other environmental laws." The Corps' decision to limit its alternatives analysis to each separate section was recently upheld by the southern district court in Hoosier Environmental Council v. U.S. Army Corps of Engineers, No. 1:11-cv-0202-LJM-DML, 2012 U.S. Dist. LEXIS 102568 (S.D. Ind. July 24, 2012).

A second issue raised was the selection of Alternative 3C in Tier I over an alternative that would have utilized the existing US Route 41 and Interstate 70. This alternative was determined not to be practicable because it failed to satisfy project goals.

e. (☒ NA) Site selected for further analysis and why.

For the reasons stated in 4.d., the Alternative 3C corridor was selected from the sites evaluated in the Tier I FEIS for further analysis in Tier II.

For the Tier II evaluation, a computer-aided tool was utilized to identify the alternative mainline alignments for Section 4 and develop alignments based on specific criteria that included avoiding large clusters of homes, cemeteries, and large bodies of water and minimizing impacts on key resources and large electric power transmission lines. In order to better assess potential impacts, the alignments were broken into eight subsections using points where the alignments converged as breaks. Each subsection had 2 or 3 alternative alignments that were initially screened for potential impacts to wetlands, forest, agricultural land, floodplain, streams, subsurface drainage features, historic properties, and residential and business displacements. Subsection alternatives with fewer impacts to these resources were carried forward for detailed study.

INDOT also evaluated environmental impacts at potential interchange locations at SR 45, SR 54, Greene County/Monroe County Line, and SR 37. None of the interchanges would impact historic properties, wetlands, cemeteries, known caves, or major springs. The combination of interchanges that provided the highest overall interchange demand volume and generally demonstrated the greatest congestion relief and crash reduction per vehicle mile travelled in the study area was selected for detailed analysis. This interchange alternative would provide interchanges at SR 45, Greene County/Monroe County Line, and SR 37.

Subsection Alternatives were combined to create four separate end-to-end alternatives that extend from the southern terminus of Section 4 just east of US 231 in Greene County to the northern terminus at SR 37 in Monroe County. The end-to-end alternatives are referred to as Alternatives 1 through 4. Alternative 2 was identified in the Draft EIS as the Preferred Alternative based on consideration of environmental impacts and costs along Subsection Alternatives. For the Final EIS, Alternative 2 was modified by minor profile grade and local access design changes, producing Refined Preferred Alternative 2, the preferred alternative for the proposed project.

For all of the detailed Subsection Alternatives, the engineering design criteria were refined to allow the development of initial design and low-cost alternatives. The low-cost alternative incorporates design measures that would minimize the effects of the topography within Section 4. After publication of the FEIS and ROD, geotechnical investigations identified areas where the low-cost design criteria can be used. The final design for Section 4 is a combination of the initial design and the low-cost design alternatives.

The on-site alternatives discussed below are the crossings associated with alternative alignments presented in the Tier II FEIS – Alternatives 1 through 4 and Refined Preferred

Alternative 2.

On-site configurations.

Description	Comparison to criteria
Crossings 1-18 for Alternative 1 Alignment, initial and low-cost designs	See Table and Discussion below for information on stream, wetland and upland forest impacts. See Discussion below for information on impacts to sensitive environmental resources, farmland, floodplains and historic resources.
Crossings 1-18 for Alternative 2 Alignment, initial design and low cost	See Table and Discussion below for information on stream, wetland and upland forest impacts. See Discussion below for information on impacts to sensitive environmental resources, farmland, floodplains and historic resources.
Crossings 1-18 for Alternative 3 Alignment, initial and low-cost designs	See Table and Discussion below for information on stream, wetland and upland forest impacts. See Discussion below for information on impacts to sensitive environmental resources, farmland, floodplains and historic resources.
Crossings 1-18 for Alternative 4 Alignment, initial and low-cost designs	See Table and Discussion below for information on stream, wetland and upland forest impacts. See Discussion below for information on impacts to sensitive environmental resources, farmland, floodplains and historic resources.
Crossings 1-18 for Refined Preferred Alternative 2, initial and low-cost designs	See Table and Discussion below for information on stream, wetland and upland forest impacts. See Discussion below for information on impacts to sensitive environmental resources, farmland, floodplains and historic resources.

The impacts and costs for end-to-end Alternatives 1 through 4 and Refined Preferred Alternative 2 were evaluated in the Final EIS. Potential impacts were calculated using the total length of stream and area of wetland located in the Right of Way. The impacts were broken up by Subsection in each end-to-end Alternative. Evaluation of potential impacts in each Subsection allowed for the identification of a single preferred end-to-end alignment alternative which minimized overall costs and impacts.

Alternative alignments for Section 4 were developed using assumptions about the design profiles and typical sections based on INDOT's Design Manual. These alignments were refined with additional design details. As part of this process, overall engineering design criteria were refined to consider variations in order to better estimate the possible range of construction costs. These variations included measures focused on minimizing the effects of the topography within Section 4. As a result of the design process, the alternative alignments were evaluated using two different set of design criteria – initial and low-cost. The proposed project is an alignment created using a combination of these two sets of design criteria.

For linear transportation projects, the Louisville District reviews impacts to "waters of the United States" as single and complete projects at each crossing of a single "water of the U.S." at a specific location. For linear projects such as Section 4 crossing a single or multiple waters several times at separate and distant locations, each crossing is considered a single and complete project. In Section 4, single and complete crossings consisted of crossings of waters located closely together and each crossing contains more than one "water of the U.S." A total of 18 separate and complete crossings of "waters of the U.S." would be constructed for Section 4 of the Interstate 69 Evansville to Indianapolis extension.

Each of the eight Subsections used for impact analysis in the FEIS would have at least one of the eighteen proposed crossings. Four of the proposed crossings – Crossings 3, 4, 6, and 14, extend through two subsections. The remaining fourteen crossings are all located within one subsection.

For the purposes of this decision document, a comparison of the impacts to wetlands and streams for the construction of the proposed crossings was made based on a comparison of the calculated impacts in each Subsection using initial and low-cost design criteria as presented in the Final EIS. The tables below summarize potential impacts in the initial and low-cost design end-to-end Alternative by Subsection.

Initial Design

	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Refined Preferred Alternative 2	
Subsection	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Stream (linear feet)
A – Crossing 1	0.45	5,356	0.45	5,356	0	4,423	0.45	5,356	0.45	5,420
B – Crossing 2 (part)	0	1,835	0	1,835	0	1,835	0	1,835	0	1,830
C – Crossing 2 (part) and 3 (part)	7.51	9,215	6.83	7,824	6.83	7,824	7.51	9,215	6.83	7,884
D – Crossing 3 (part), 4, 5, and 6 (part)	1.74	10,885	1.74	10,885	1.74	10,885	1.74	10,885	1.74	10,885
E – Crossing 6 (part), 7, and 8	0.37	20,995	0.37	20,995	0.37	20,995	0.37	20,995	0.35	20,629
F – Crossing 9, 10, 11, 12, 13, and 14 (part)	3.02	30,525	0.16	35,138	0.46	37,408	2.76	29,029	0.15	34,696
G – Crossing 14 (part), 15, and 16	0	20,363	0	20,363	0	20,363	0	20,363	0	19,496
H – Crossing 17 and 18	0	12,551	0.03	10,405	0.03	8,965	0.03	10,405	0.03	10,406
TOTAL	13.09	111,725	9.58	112,901	9.43	112,332	12.86	107,717	9.55	111,246

Low Cost Design

	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Refined Preferred Alternative 2	
Subsection	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Streams (linear feet)	Wetland (acres)	Stream (linear feet)
A – Crossing 1	0.18	4,437	0.18	4,437	0	3,511	0.18	4,437	0.18	4,549
B – Crossing 2 (part)	0	1,778	0	1,778	0	1,778	0	1,778	0	1,779
C – Crossing 2 (part) and 3 (part)	4.60	7,451	4.60	6,145	4.60	6,145	4.60	7,451	4.60	6,146
D – Crossing 3 (part), 4, 5, and 6 (part)	0.22	7,474	0.22	7,474	0.22	7,474	0.22	7,474	0.22	7,474
E – Crossing 6 (part), 7, and 8	0.17	19,469	0.17	19,469	0.17	19,469	0.17	19,469	0.17	19,472
F – Crossing 9, 10, 11, 12, 13, and 14 (part)	2.39	27,163	0.15	29,432	0.27	31,996	2.26	25,069	0.15	29,427
G – Crossing 14 (part), 15, and 16	0	15,850	0	15,850	0	15,850	0	15,850	0	15,852
H – Crossing 17 and 18	0	9,845	0	8,525	0	7,387	0	8,525	0	8,497
TOTAL	7.56	93,467	5.32	93,110	5.26	93,610	7.43	90,053	5.32	93,196

Since the FEIS impact analysis includes the entire length of stream and acreage of wetland within the ROW and the proposed project would only impact the portion of the streams and wetlands that are within the project's construction limits, the estimated impacts for all of the alternatives are higher than the actual impacts resulting from construction of any of them would be. The comparison between alternatives presented below is based on the data for subsection alternatives presented in the FEIS. The range of acres and linear feet impacted by the alternative are based on the low-cost and initial design criteria.

All of the five mainline Alternatives would have essentially the same alignment in Subsections B, D, E and G. These four subsections had preliminary alternatives that were eliminated from detailed consideration because they were determined to have unacceptable impacts. Once these preliminary alternatives were eliminated, there was only one acceptable alternative in each subsection that was carried forward for detailed consideration. The alternative for each of these subsections was refined for the Refined Preferred Alternative 2 alignment.

Subsection B would be approximately 2.28 miles long. There were two preliminary Subsection B alternatives and one of them was eliminated from detailed consideration because potential forest, core forest, and stream impacts were estimated to be much higher than the alternative that was carried forward.

Subsection D would be approximately 2.86 miles long. One of the two preliminary alternatives for Subsection D was removed from detailed consideration because it was

located in the recharge area of a major spring. The Subsection D alternative that was carried forward avoided this recharge area. In addition, this alternative was located on slightly lower hilltops than the eliminated alternative and would allow for variable median widths and differing elevations for north- and south-bound lanes, enabling the highway grade to more closely follow the terrain and minimizing cut and fill in the Subsection.

Subsection E would be approximately 4.6 miles long. There were three preliminary alignments considered for Subsection E. One of the alternatives was eliminated from further consideration because it would have required filling a large spring-fed pond. The other two alternatives were combined to form a hybrid alternative that would avoid or minimize the impacts to resources of concern along portions of each of the two alternatives. The hybrid alternative was preferred due to constructability concerns, the avoidance of impacts to a sinking stream, and the avoidance or minimization of potential wetland impacts and residential displacements.

Subsection G would be approximately 3.1 miles long. Two preliminary alternative alignments were considered for this subsection. One of the alternative alignments was found to have unacceptable impacts to karst features and to a cave in which state endangered cave biota have been found. In addition, karst features located along this alignment would have made it problematic for the construction of a roadway. This alternative was eliminated from further consideration and the other alternative was carried forward for detailed analysis.

Subsection A would be approximately 1.7 miles long. The preferred alternative for Subsection A is a refined version of the alternative used in Mainline Alternatives 1, 2, and 4. For these three alternatives, the construction of Subsection A was estimated to impact a total of 0.18 (low-cost criteria) to 0.45 (initial criteria) acre of wetland and 4,437 to 5,356 linear feet of stream. For Alternative 3, Subsection A was estimated to impact 0 (both low-cost and initial) acre of wetland and 3,511 to 4,423 linear feet of stream. For Refined Preferred Alternative 2, the subsection alternative in Alternatives 1, 2, and 4 was refined to change one grade separation to a road closure and one road closure to a grade separation. Refined Preferred Alternative 2 was estimated to impact 0.18 to 0.45 acre of wetland and 4,549 to 5,420 linear feet of stream. Although Refined Preferred Alternative 2 would impact more wetland and stream, it would impact fewer acres of core forest and managed land (federal, state, or private lands managed for timber production, wildlife habitat, recreation, education, or other similar purposes). Refined Preferred Alternative 2 would impact 3.39 to 3.5 acres of core forest and Alternative 3 would impact 32.59 to 35.09 acres of core forest. Core forest is the portion of forest that is 328 feet from the forest edge. Impacts to core forest lead to fragmentation, which affects wildlife and vegetative communities by providing the opportunity for the introduction of invasive plant species and nuisance wildlife species. Migratory birds are especially affected by fragmentation since many of them have specific nesting needs that require large blocks of forest. Nests deep in the forest are less susceptible to parasitism or predation by edge species such as cowbirds and raccoons. Fragmentation can also carve up the larger habitat, separating habitat blocks so they no longer function as one habitat. This affects migratory birds and other wildlife. Considering Alternative 2's lower impacts to core forest and managed land, it would have the lowest overall impacts to the environment. In addition, the straight alignment provided by Alternative 2 would

provide a substantively safer alignment than the one used in Alternative 3, creating a more desirable and safer approach for motorists entering and exiting the US Route 231 interchange. The preferred alternative was selected because it would have fewer impacts on core forest and managed land and it would provide a safer alignment for the US Route 231 interchange.

Subsection C would be approximately 1.7 miles long. There were three alternatives considered for Subsection C – one used in Alternatives 1 and 4, one used in Alternatives 2 and 3, and a refinement of the one used in Alternatives 2 and 3 that is used in Refined Preferred Alternative 2. The estimated impacts in Subsection C for Alternatives 1 and 4 would be 4.6 to 7.51 acres of wetland and 7,451 to 9,215 linear feet of stream. The impacts in Subsection C for Alternatives 2 and 3 were estimated to be 4.60 to 6.83 acres of wetland and 6,145 to 7,824 linear feet of stream. For Refined Preferred Alternative 2, the alignment for Alternatives 2 and 3 was refined to make minor design corrections at various locations in both the initial and low-cost design criteria. Refined Preferred Alternative 2 in Subsection C Alternative was estimated to impact 4.60 to 6.83 acres of wetland and 6,146 to 7,884 linear feet of stream. The preferred alternative would impact fewer linear feet of stream for both design criteria and less acreage of wetland for initial design criteria. The preferred alternative was selected because it would have fewer impacts on stream, wetland, noise, forest, core forest and karst features. In addition, the total cost would be lower.

Subsection F would be approximately 7.5 miles long. There were four alternatives considered for Subsection 4 – one for each Alternative. The estimated impacts in Subsection F for Alternative 1 would be 2.39 to 3.02 acres of wetland and 27,163 to 30,525 linear feet of stream. Alternative 2 would impact 0.15 to 0.16 acre of wetland and 29,432 to 35,138 linear feet of stream. Alternative 3 would impact 0.27 to 0.46 acre of wetland and 31,996 to 37,408 linear feet of stream. Alternative 4 would impact 2.26 to 2.76 acres of wetland and 25,069 to 29,029 linear feet of stream. Alternative 2 was the recommended alternative for Subsection F because it had the fewest impacts to wetlands, forest, and core forest, the fewest displacements, fewer impacts to karst features than Alternatives 1 and 4 (same impacts to karst features as Alternative 3), avoids the Sparks Cemetery and Indian Creek township fire station, and costs less than the other Alternatives. Alternative 2 was refined to allow minor design corrections and changes to the vertical road profile under the initial design criteria in two locations to reduce forest impacts near Indiana bat hibernacula. Refined Preferred Alternative 2 would impact 0.15 acre of wetland and 29,427 to 34,696 linear feet of stream.

Subsection H would be approximately 3.3 miles long. Three alternative alignments were carried forward for detailed study in Subsection H – one for Alternative 1, one for Alternatives 2 and 4, and one for Alternative 3. The estimated impacts in Subsection H for Alternative 1 would be 0 acre of wetland and 9,845 to 12,551 linear feet of stream. For Alternatives 2 and 4, the estimated impacts in Subsection H were 0 to 0.03 acre of wetland and 8,525 to 10,405 linear feet of stream. Alternative 3 was estimated to impact 0 to 0.03 acre of wetland and 7,387 to 8,965 linear feet of stream. Although Alternative 2 would impact more linear feet than Alternative 3, Alternative 2 was the recommended alternative for Subsection H because it has fewer impacts to forest and core forest. Alternative 3 would impact 32.59 to 35.09 acres of core forest and Alternative 2 would impact 22.03 to 23.75

acres of core forest. Considering Alternative 2's lower impacts to core forest, it would have the lowest overall impacts to the environment. Alternative 2 would also have fewer displacements, fewer stream relocations, and would cost less. Alternative 2 was refined to add an access road and allow for minor design corrections. The impacts for Refined Preferred Alternative 2 in Subsection H would be 0 to 0.03 acre of wetland and 8,497 to 10,406 linear feet of stream.

f. Other alternatives not requiring a permit, including No Action.

Description	Comparison to criteria
No Action	Neither the eighteen crossings, nor Section 4 of Interstate 69 highway extension project between Evansville and Indianapolis, Indiana would be built. The no action alternative would not cause any adverse impacts to the general ecology of any "waters of the U.S." in the Section 4 corridor, including Dowden Branch, Black Ankle Creek, Dry Branch, Plummer Creek, Mitchell Branch, Indian Creek, and unnamed tributaries to Doans Creek, Dowden Branch, Bogard Creek, Flyblow Branch, Black Ankle Creek, Plummer Creek, Dry Branch, Little Clifty Branch, Little Indian Creek, Mitchell Branch, Indian Creek, Clear Creek, open water, and emergent, scrub-shrub, and forested wetlands. However, this alternative would not accomplish the applicant's stated purpose.

g. Alternatives not practicable or reasonable. *Describe/explain*

Of the 12 alternative corridors evaluated in the Tier I FEIS, four involved unavoidable impacts to sensitive environmental resource, another four, including the corridor that utilized the existing US Route 41 and Interstate 70, were determined not to be practicable because they failed to satisfy project goals (particularly core goals) and, thereby, the purpose and need for the Interstate 69 Evansville to Indianapolis extension project.

In the Tier II FEIS a number of alternative alignments were identified using the computer-aided tool. Alternatives that failed to meet the project criteria were eliminated and are considered not to be practicable. Criteria utilized included the avoidance of sensitive environmental resources and certain existing manmade resources of importance and the ability to satisfy highway design standards and project purposes.

h. Least environmentally damaging practicable alternative. *Describe/explain*

The Corps has reviewed the information on alternatives contained in the Tier I FEIS and Tier II FEIS and RODs and the permit application, and for the reasons stated in d, e, f and g above have determined that the proposed project is the least damaging practicable alternative.

5. Evaluation of the 404(b)(1) Guidelines. (☐NA)

a. Factual determinations.

Physical Substrate.

☐ See Existing Conditions, paragraph 1

☒ The substrate composition at each of the crossings was identified using the U.S. Department of Agriculture's Web Soil Survey for Greene and Monroe County. Section 4 traverses five major soil associations: Ava-Cincinnati-Alford, Negley-Parke-Chetwynd, Zanesville-Wellston-Gilpin, Stendal-Bonnie-Birds, and Crider-Baxter-Bedford.

Soils in Section 4 primarily consist of deep to moderately deep, sandstone and limestone derived soils. In western Greene County along the western 2 miles of Section 4, soils are deep, nearly level to strongly sloping and range from poorly drained to well drained. In the remainder of Greene County, with the exception of the Black Ankle and Plummer Creek floodplains, soils are deep to moderately deep, very gently sloping to very step, and are well drained to moderately well drained. In the Black Ankle Creek and Plummer Creek floodplains, soils are deep, nearly level, and somewhat poorly drained to very poorly drained. Soils in the western half of the Monroe County portion of Section 4 are deep to moderately deep, nearly level to moderately steep, and well drained to moderately well drained. In the eastern half of the Monroe County portion of Section 4, soils are deep to moderately deep, gently to strongly sloping, and well drained.

Substrate composition at Crossing 1 is dominated by Gilpin-Wellston and Haymond silt loams. Approximately 3,878 linear feet of nine unnamed tributaries to Doans Creek, 0.19 acre of scrub-shrub wetland, and 0.19 acre of pond would be filled with 31,673 cys of clean earthen fill material and riprap.

Substrate composition at Crossing 2 is dominated by Wellston and Stendal silt loams. Approximately 855 linear feet of Dowden Branch and an unnamed tributary to Dowden Branch would be filled with 31 cys of clean earthen fill material, riprap, and concrete.

Substrate composition at Crossing 3 is dominated by Zanesville silt loam. Approximately 4,734 linear feet of Bogard Creek, seven unnamed tributaries to Bogard Creek, three unnamed tributaries to Flyblow Branch, and four unnamed tributaries to Black Ankle Creek 0.32 acre of wetland would be filled with 11,037 cys of clean earthen fill material, riprap, and concrete.

Substrate composition at Crossing 4 is dominated by Stendal and Steff silt loams. Approximately 536 linear feet of two unnamed tributaries to Black Ankle Creek and 7 acres of wetland would be filled with 119,028 cys of clean earthen fill material, riprap, and concrete.

Substrate composition at Crossing 5 is dominated by Berks-Ebal complex and

Gilpin-Wellston silt loams. Approximately 7,759 linear feet of Dry Branch, five unnamed tributaries to Dry Branch, six unnamed tributaries to Plummer Creek, and three unnamed tributaries to Black Ankle Creek and 0.08 acre of wetland would be filled with 2,014 cys of clean earthen fill material, riprap, and concrete.

Substrate composition at Crossing 6 is dominated by Berks-Ebal complex and Gilpin-Wellston silt loams. Approximately 3,019 linear feet of Plummer Creek and eight unnamed tributaries to Plummer Creek and 0.15 acre of wetland would be filled with 6,913 cys of clean earthen fill material, riprap, and concrete.

Substrate composition at Crossing 7 is dominated by Gilpin-Wellston and Zanesville silt loams. Approximately 6,826 linear feet of three unnamed tributaries to Plummer Creek and fifteen unnamed tributaries to Little Clifty Branch and 0.27 acre of open water would be filled with 15,266 cys of clean earthen fill, concrete, and riprap.

Substrate composition at Crossing 8 is dominated Ebal-Wellston and Wellston silt loams. Approximately 6,691 linear feet of Mitchell Branch, fourteen unnamed tributaries to Mitchell Branch, three unnamed tributaries to Little Indian Creek, and 0.01 acre of wetland would be filled with 2,905 cys of clean earthen fill, concrete, and riprap.

Substrate composition at Crossing 9 is dominated by Berks-Ebal complex and Gilpin-Ebal silt loams. Approximately 2,041 linear feet of an unnamed tributary to Mitchell Branch and seven unnamed tributaries to Indian Creek would be filled with 484 cys of clean earthen fill and riprap.

Substrate composition at Crossing 10 is dominated by Gilpin-Ebal silt loams. Approximately 7,228 linear feet of Indian Creek and eighteen unnamed tributaries to Indian Creek would be filled with 2,163 cys of clean earthen fill, concrete, and riprap.

Substrate composition at Crossing 11 is dominated by Gilpin-Ebal and Gilpin-Wellston silt loams. Approximately 8,913 linear feet of Indian Creek and twenty unnamed tributaries to Indian Creek and 0.3 acre of pond would be filled with 12,629 cys of clean earthen fill, concrete, and riprap.

Substrate composition at Crossing 12 is dominated by Ebal-Gilpin-Hagerstown and Ebal-Wellston-Gilpin silt loams. Approximately 11,916 linear feet of Indian Creek eighteen unnamed tributaries to Indian Creek, 0.15 acre of wetland, and 0.14 acre of pond would be filled with 10,043 cys of clean earthen fill, concrete, and riprap.

Substrate composition at Crossing 13 is dominated by Ebal-Wellston-Gilpin silt loams. Approximately 2,788 linear feet of unnamed tributaries to Indian Creek would be filled with 1,024 cys of clean earthen fill, concrete, and riprap.

Substrate composition at Crossing 14 is dominated by Ebal-Wellston-Gilpin silt

loams. Approximately 6,002 linear feet of unnamed tributaries to Indian Creek and 0.63 acre of pond would be filled with 934 cys of clean earthen fill, concrete, and riprap. Substrate composition at Crossing 15 is dominated by Caneyville and Crider silt loams. Approximately 7,093 linear feet of unnamed tributaries to Clear Creek would be filled with 2,703 cys of clean earthen fill, concrete, and riprap. Substrate composition at Crossing 16 is dominated by Caneyville silt loam. Approximately 2,862 linear feet of unnamed tributaries to Clear Creek would be filled with 625 cys of clean earthen fill, concrete, and riprap. Substrate composition at Crossing 17 is dominated by Caneyville and Hagerstown silt loams. Approximately 2,963 linear feet of unnamed tributaries to Clear Creek would be filled with 3,486 cys of clean earthen fill, concrete, and riprap. Substrate composition at Crossing 18 is dominated by Hagerstown silt loam. Approximately 6,706 linear feet of unnamed tributaries to Clear Creek would be filled with 1,252 cys of clean earthen fill, concrete, and riprap. Direct impacts to the substrate in Bogard Creek, Plummer Creek, Indian Creek, their tributaries, wetlands, and ponds would consist of fill material being placed in these waters in order to construct eighteen separate and complete crossings of Section 4 of the Interstate 69 Evansville to Indianapolis extension. The substrate at each crossing would be completely changed due to the fill. The earthen fill material would comply with INDOT's 2010 Standard Specifications, which require borrow material to be "free of substances that will form deleterious deposits, or produce toxic concentrations or combinations that may be harmful to human, animal, plant or aquatic life, or otherwise impair the designation uses of the stream or area."
Water circulation, fluctuation, and salinity. ☒ Addressed in the Water Quality Certification. ☐
Suspended particulate/turbidity. ☒ Turbidity controls in Water Quality Certification. ☐
Contaminant availability. ☒ General Condition requires clean fill. ☐
Aquatic ecosystem and organism. ☒ Wetland/wildlife evaluations, paragraphs 5, 6, 7 & 8. ☐
Proposed disposal site. ☒ Public interest, paragraph 7. ☐
Cumulative effects on the aquatic ecosystem.

☒ See Paragraph 7.e. ☐
Secondary effects on the aquatic ecosystem. ☒ See Paragraph 7.e. ☐

b. Restrictions on discharges (230.10).

(1) It ☒has/☐has not been demonstrated in paragraph 5 that there are no practicable nor less damaging alternatives which could satisfy the project's basic purpose. The activity ☒is/☐is not located in a special aquatic site (wetlands, sanctuaries, and refuges, mudflats, vegetated shallows, coral reefs, riffle & pool complexes). The activity ☒does/☐does not need to be located in a special aquatic site to fulfill its basic purpose.

(2) The proposed activity ☐does/☒does not violate applicable State water quality standards or Section 307 prohibitions or effluent standards (☐based on information from the certifying agency that the Corps could proceed with a provisional determination). The proposed activity ☐does/☒does not jeopardize the continued existence of federally listed threatened or endangered species or affects their critical habitat. The proposed activity ☐does/☒does not violate the requirements of a federally designated marine sanctuary.

(3) The activity ☐will/☒will not cause or contribute to significant degradation of waters of the United States, including adverse effects on human health; life stages of aquatic organisms' ecosystem diversity, productivity and stability; and recreation, esthetic, and economic values.

(4) Appropriate and practicable steps ☒have/☐have not been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (see Paragraph 8 for description of mitigative actions).

6. Public Interest Review: All public interest factors have been reviewed as summarized here. Both cumulative and secondary impacts on the public interest were considered. Public interest factors that have had additional information relevant to the decision are discussed in number 7. Public Interest factors that are not applicable to the proposed project are not checked.

+ Beneficial effect
0 Negligible effect
- Adverse effect
M Neutral as result of mitigative action

+	0	-	M	
☐	☐	☒	☐	Conservation.
☒	☐	☐	☐	Economics.
☐	☐	☐	☒	Aesthetics.
☐	☐	☒	☐	General environmental concerns.
☐	☐	☐	☒	Wetlands.
☐	☒	☐	☐	Historic properties.
☐	☐	☐	☒	Fish and wildlife values
☐	☒	☐	☐	Flood hazards.
☐	☒	☐	☐	Floodplain values.
☐	☒	☐	☐	Land use.
☐	☐	☐	☐	Navigation.
☐	☒	☐	☐	Shore erosion and accretion.
☐	☒	☐	☐	Recreation.
☐	☒	☐	☐	Water supply and conservation.
☐	☐	☐	☒	Water quality.
☐	☐	☒	☐	Energy needs.
☒	☐	☐	☐	Safety.
☐	☐	☒	☐	Food and fiber production.
☐	☐	☒	☐	Mineral needs.
☐	☐	☒	☐	Considerations of property ownership.
☒	☐	☐	☐	Needs and welfare of the people.

7. Effects, policies and other laws.

   a. ☐NA

Public Interest Factors. *(add factors that are relevant to specific project that you checked in number 6 above and add a discussion of that factor)*

Conservation: The proposed project would be constructed in an area that includes karst features. Karst features include caves, sinkholes, and underground streams that are formed by the slow dissolving of bedrock. Groundwater in karst terrain is especially vulnerable to contamination because surface waters flow directly into the subsurface at sinkholes or other features, without the benefit of filtration. The groundwater will eventually exit at springs which may be a considerable distance from the project corridor.

Karst terrain presents challenges to highway construction – the collapse of filled sinkhole and cave passages can compromise adjacent and overlying structures. In addition, the construction of an impervious highway would alter the natural patterns of run-off and infiltration.

INDOT, IDEM, IDNR, and the USFWS entered into the Karst Memorandum of

Understanding (Karst MOU) in 1993. This MOU defines guidelines for the development of transportation projects in karst areas to conserve these features and to minimize impacts of construction projects. The Karst MOU documents that the signatory agencies have agreed to the implementation of a seventeen step process for development of highway projects in karst terrain. The USEPA was invited to participate in the karst study and assessment for the Tier II studies in Sections 4 and 5 of the Interstate 69 Evansville to Indianapolis extension. The Interstate 69 Section 4 Karst Agreement, which specifically addresses karst resources in Section 4, was signed by INDOT, IDEM, IDNR, and the USFWS in 2012.

In accordance with the Karst MOU, INDOT conducted a survey of karst geology for the Section 4 Tier II FEIS. The survey was conducted in an area including the corridor and appropriate areas outside of the corridor that may be associated with the corridor via karst groundwater flowpaths or surface runoff. This survey involved the identification and documentation of karst feature locations, the determination of subsurface flows and surface water drainage patterns, and calculations of estimated annual pollutant loads from the highway and drainage within the right of way prior to, during, and after construction. A Draft Karst Report was prepared and provided to the MOU signatory agencies and the USEPA for review and comment. Comments were incorporated into the Karst Report, which was included in the Section 4 Tier II FEIS.

All cave features were identified as avoidance areas with a 200-foot buffer around the cave entrance. Areas of significant springs, other important karst features including caves, sinkholes and swallets (area where spring sinks into the ground), and high densities of karst features were evaluated for avoidance and minimization. INDOT considered moving the alternative alignment outside of the corridor to avoid or minimize impacts to karst features. INDOT determined that alternatives near to and outside of the corridor within the limits of the karst study area would encounter areas of similar karst feature density and would not result in an appreciable difference in karst impacts. In addition, the same sinkhole plain (Mitchell Plain) that is being crossed in the corridor extends for miles to the north and south with similar surface feature densities anticipated throughout the area. Development of alternatives outside of the corridor was not considered to provide avoidance and/or minimization to karst impacts.

There were three distinct areas of karst terrain within the Section 4 corridor. The karst terrain begins at Taylor Ridge and continues through the remainder of the Section 4 corridor to its terminus at State Route 37. Crossings 1 through 3 would be located outside of karst terrain. A total of 143 karst features have been identified within the Section 4 right-of-way.

Karst Terrain Area 1. Taylor Ridge to State Route 54
From Taylor Ridge to State Route 54 southwest of Koleen, the ridges are mostly sandstone and the valleys are limestone. The sandstone cap rock limits sinkhole development on the ridges. Most recharge occurs in sinkholes and joints in the dry run valleys with some recharge occurring along fractures in the sandstone ridges. Crossings 4 through 7, and part of 8 would be located in this karst area. The proposed project would impact 10 identified karst features – specifically one cave (between 0 and 100 feet long), one low infiltration

sinkhole, one sinking stream, two 0 – 1 gallon per minute (gpm) springs, four 2-10 gpm springs, and one swallet.

Karst Terrain Area 2. State Route 54 to Harmony Road
From State Route 54 to Harmony Road south of Standford, sinkhole development occurs on the ridges, primarily in the eastern portion. Sinkholes and sinking streams provide the majority of recharge to springs. Part of Crossing 8 and Crossings 9 through 14 would be located in this area. The proposed project would impact 33 identified karst features in this karst area – specifically seven high infiltration sinkholes, nine medium infiltration sinkholes, eight low infiltration sinkholes, one sinking stream, four 0-1 gpm springs, and four swallets.

Karst Terrain Area 3. Harmony Road to State Route 37
From Harmony Road to State Route 37 southwest of Bloomington, the karst terrain is exemplified by ridges and valleys that are comprised of limestone. Sinkhole development occurs in the cap rock on the ridges and in drainages. These features act as recharge areas during rain events, providing water for the springs located in the valleys. Crossings 14 through 18 would be located in this area. The proposed project would impact 100 identified karst features in this karst area – specifically seventeen high infiltration sinkholes, twenty-nine medium infiltration sinkholes, thirty-one low infiltration sinkholes, two sinking streams, thirteen 0-1 gpm springs, seven 2-10 gpm springs, and one swallet.

The proposed crossings would impact identified karst features in the Section 4 corridor. The Karst Survey Report identified ten karst areas of importance in the study area. These areas were important for hydrologic, geologic, engineering, and cultural reasons, as explained further below. Some areas of importance are outside of the proposed project's right of way or corridor but are included because of the potential for indirect effects. The ten karst areas of importance are described below.

1. Cave A
Cave A is located approximately 0.7 mile north of the Section 4 corridor. Dye tracing tests revealed that recharge to Cave A is derived in part from three sinking streams which receive run-off from the Section 4 corridor. The cave would not be directly impacted by the proposed project. The three sinking streams are linked to Cave A through long flowpaths which include karst conduits in limestone. The elevation of the limestone and the streambed indicates that the flowpath to this cave probably consists of a combination of conduit and surface flow. The water could pass out of and back into the limestone one or more times. The majority of the recharge to the cave is derived from more proximal features. The Corps concurs with the finding in the Tier II FEIS that the proposed project would not be anticipated to cause an appreciable degradation of the cave spring's water quality or quantity.

2. Cave B
The entrance to Cave B is located approximately 0.6 mile north of the corridor and would not be directly impacted by the proposed project. Dye tracing tests revealed that the recharge to Cave B is derived in part from a swallet that crosses into the Section 4 corridor. However, the proposed project is on an alignment within the corridor that would not

encroach upon the drainage area associated with this swallet.

3. Cave C
Cave C is located approximately 0.7 mile from the proposed project and would not be directly impacted by the construction of Section 4. Dye tracing tests revealed that recharge to Cave C is derived partly from four swallets which receive runoff from the Section 4 corridor. There are an additional three recharge features, which were not dye traced, that are potentially hydrologically linked to Cave C. The drainage area associated with these swallets and recharge features crosses into the Section 4 corridor. The proposed project would impact these features and associated drainage area and could impact the recharge to Cave C. The affected drainage areas are linked to Cave C via long flowpaths and the majority of the recharge to this cave is derived from more proximal features. INDOT would design the Section 4 drainage system to ensure the recharge to Cave C is perpetuated, if appropriate and practicable. Therefore, the Corps concurs with the FEIS finding that it is not anticipated that the project would cause an appreciable degradation of the cave spring's water quality or quantity.

4. Cave D
Cave D is located approximately 500 feet south of the Section 4 corridor and would not be directly impacted by the proposed project highway construction. Dye tracing tests revealed that recharge to a spring, which is known to be connected to Cave D, is derived in part from a sinking stream which receives runoff from the Section 4 corridor. The proposed project would be constructed on an alignment that would not encroach upon this drainage area. Therefore, the project would not impact the recharge to Cave D and the associated spring. In addition, the proposed project's placement within the existing topography would not direct runoff towards the sinking stream.

5. Cave E
Cave E is located approximately 600 feet south of the Section 4 corridor and would not be directly impacted by the proposed project. Dye tracing tests revealed that recharge to Cave E is derived in part from a swallet which receives run-off from the Section 4 corridor. Although construction of the proposed project would be predominately down-gradient of the swallet, Section 4 could impact the recharge to Cave E and has the potential to adversely affect the cave spring's water quality or quantity.

6. Spring A
Spring A, an important landmark and a supplemental source of water for a several acre wetland, is located within the Section 4 corridor. The spring would not be directly impacted by the proposed project. Dye tracing tests revealed that a portion of the recharge to Spring A is derived from a sinking stream in a drainage east of Spring A within the Section 4 corridor. It is likely that the area downstream of this sinking stream acts as a losing stream during high flow periods and also provides recharge to Spring A. The sinking stream and the potential losing stream reach down gradient from it would receive run-off from the Section 4 corridor. Construction in the drainage area of the sinking stream could impact the recharge to Spring A. The proposed project would cross the sinking stream and has the potential to adversely affect the spring's water quality or quantity.

7. Cave F

Cave F is located 3,000 feet southeast of Cave A, outside of the Section 4 corridor. The cave would not be directly impacted by highway construction. Cave F is located between Cave A and the input features for the dye traces. Dye tracing tests revealed recharge to Cave A is derived in part from three sinking streams which receive run-off from the Section 4 corridor. It is possible that groundwater does flow from the Section 4 corridor towards Cave F. Although no dye was recovered at Cave F during the traces that were linked to Cave A, it may have a recharge area associated with, or similar to Cave A. The proposed project is located about a half-mile south of Cave F and has the potential to impact the drainage areas of potential Cave F recharge features located within the Section 4 corridor. The affected drainage areas are linked to this cave via unusually long flowpaths which include karst conduits in limestone. The elevation of the limestone and the streambeds indicates that the flowpath to this cave probably consists of a combination of conduit and surface flow. With this flowpath, the water could pass out of and back into the limestone one or more times. The majority of the recharge to Cave F is derived from more proximal features. Therefore, it is not anticipated that the project will cause a material degradation of the cave spring's water quality or quantity.

8. Cave G

Cave G is located approximately 500 feet south of the Section 4 corridor. Cave G has been mapped and the cave passage trends toward the Section 4 corridor. The mapped extent of Cave G terminates outside the Section 4 corridor, over 1,000 feet south of the proposed project. Dye tracing tests revealed that recharge to Cave G is derived in part from a sinking stream that receives runoff from the Section 4 corridor. Construction of the proposed project could impact the recharge to Cave G, specifically the northern edge of the sinking stream's drainage area.

9. State Route 37 and Victor Pike

Through dye tracing tests, the northeastern side of State Route 37 near its intersection with Victor Pike was determined to part of the recharge area for one significant spring. The high density of karst features along the southwestern side of State Route 37 near its intersection with Victor Pike is a concern from an engineering standpoint. The bedrock is likely highly fractured and could pose problems for design and construction of the proposed project. This area lacks the non-carbonate cap rock that channels surface water off and away from karst forming bedrock. Additionally, the construction of State Route 37 and surrounding development has already altered the land surface and drainage patterns. Sinkholes have been filled and altered which could be problematic during construction. Drainages and conduits have also been altered which present problems in studying the hydrogeology of the area. The proposed project would encroach upon the recharge area along the northeastern side of State Route 37 near Victor Pike.

10. Tramway Road Karst Area

The Tramway Road Karst Area is located within the Section 4 corridor, north of Tramway Road and west of Victor Pike. This area has a high density of karst features and highly fractured bedrock. Dye tracing tests revealed that the area has short localized groundwater systems and karst features that do not provide recharge to any significant springs. This area will need additional engineering measures to account for the karst features and fractured

bedrock. This area lacks the non-carbonate cap rock that channels surface water off and away from karst forming bedrock. The instability of the bedrock in the area was highlighted by a sinkhole collapse documented during field mapping for the karst study. This area was reviewed in detail relative to potential roadway engineering stability concerns. The review included a general review of potential alternatives outside the Section 4 corridor. The review did not identify that an alternative outside the corridor would provide substantial karst impact and/or roadway stability benefits compared to alternatives within the corridor. The proposed project would minimize impacts to higher infiltration features and minimize anticipated stability concerns in the area by cresting the hill north of Tramway Road on its east side.

The karst areas of importance detailed above may require site specific karst design scenarios. Detailed design and mitigation measures would be provided to the IDNR, IDEM, and USFWS for review and comment prior to construction for that area. The agencies would be invited to field meetings for each construction contract to review karst features and proposed treatment measures. Agency comments would be reviewed and if INDOT determines an agency request cannot be reasonably and feasibly incorporated into the design plans, an explanation would be provided to the agency. Any outstanding concerns would be resolved at a follow up meeting with INDOT, IDNR, IDEM, and USFWS.

In addition to the identified features, unidentified features are present and an unknown number would be impacted during project construction. The methodology developed for the karst survey included the identification of karst features that could be visually observed from the surface of the ground. Dye tracing was conducted in order to determine groundwater flow patterns in the area; however, due to the invasive ground disturbance necessary to identify all subsurface karst features, identification of such features was not included in the karst survey methodology. If construction personnel identify previously unkown karst features during construction, the Interstate 69 Section 4 Karst Agreement requires the personnel to immediately inform the Project Engineer for INDOT on site. Work would stop in that area until the mitigation agreement is re-evaluated and any alterations to the agreement would need to be agreed upon by the Karst MOU signatory agencies prior to work continuing in that specific area of the project. Mitigation for impacts to unidentified karst features would be managed in the same manner as mitigation for impacts to identified features.

The general mitigation approach for karst features in Section 4 of Interstate 69 is described in the 2012 Interstate 69 Section 4 Karst Agreement. Design scenarios would be evaluated on a case-by-case basis since karst location, groundwater conditions, topography, an understanding of the relation and impact to other karst features, practicality, and the requirements of the MOU must be considered in the final design scenario used.

In accordance with the Karst MOU and the Interstate 69 Section 4 Karst Agreement, a monitoring and maintenance plan would be developed for affected karst features for each construction contract and provided to the MOU signatories for review and comment prior to construction. The mitigation and monitoring plan would include water quality sampling (baseline, during construction, post construction), cave fauna sampling, Low Salt/No Spray

maintenance standard operating procedures (SOP)/signage, and Karst feature erosion/sediment control reviews. Karst feature mitigation measures (i.e. detention basins, hazardous materials traps, rock filters, peat filters, etc.) would be installed early in the construction process to protect features from construction related water quality impacts. During construction, inspection of these measures and other stormwater control measures would be conducted per Rule 5 requirements. Rule 5 is a general permit program administered by IDEM designed to reduce sediment loading of streams that are a result of soil erosion and other activities associated with land-disturbing activities. After construction, karst feature water quality mitigation measures would be visually inspected semiannually (2 times per year) for five consecutive years. Remediation measures, if needed, would be developed in consultation with the IDNR, IDEM, and USFWS. After the five year period, karst feature water quality mitigation measures would be incorporated into a long-term monitoring system. Maintenance concerns identified as part of the long-term monitoring would be addressed.

Twenty-one comments were received in response to the public notice expressing concern about the proposed project's impacts to karst features. The comments were general in nature and did not identify any individual feature or type of impact. The proposed project was designed to avoid, minimize, and mitigate for any impacts to karst features.

There are no rivers listed in the National Wild and Scenic Rivers System in the Section 4 corridor. In addition, there are no rivers listed on the Nationwide River Inventory, the IDEM Waters Designated for Special Protection, or the IDNR Natural and Scenic River Segments within this corridor.

Economics: There would be both beneficial and adverse socio-economic impacts from the proposed project. However, overall the impacts are expected to be beneficial. Direct socio-economic impacts of the proposed crossings would include the loss of farm income due to the removal of farmland from production, project cost, increased employment during construction, annual maintenance and operation costs, changes in the local property tax base as a result of taking taxable property for public right-of-way, and changes in property values due to improved or diminished access or exposure. The proposed crossings would have the indirect socio-economic impact of increased business and employment associated with changes in land use due to development induced by improved access. Socio-economic benefits associated with the improved highway access would go to the travelling public, commercial trucking companies, and the residents of Southwest Indiana and would be long-term.

The proposed project would result in the displacement of four businesses, three at the SR 45 interchange in Greene County and one on Rockport Road in Monroe County. Two of the three potential business displacements at the SR 45 interchange would relocate their business within the vicinity and one business would retire. The business on Rockport Road would relocate on property that would remain after the proposed construction of the highway. This property would retain access to Rockport Road.

One comment was received in response to the public notice from Fern Hills Club, Inc, a nudist's club that expects the proposed highway to negatively impact their business by

removing the surrounding vegetation that currently shields the club from public view. INDOT responded that the FEIS addressed these comments. The FEIS stated that although there would be visual and noise impacts, there has been no determination that Interstate 69 would prevent this establishment from continuing to operate, and it was not designated as a business relocation. The noise abatement analysis determined that a noise barrier wall at this location would cost approximately $104,000 per benefitted receptor (resident that would benefit from the noise barrier wall). The noise barrier wall did not meet the cost-effectiveness "reasonableness" criteria of $30,000 per benefitted receptor. Therefore, a noise barrier wall would not be constructed at this location. The Corps concurs with INDOT's determination.

Aesthetics: The proposed crossings would result in both temporary and permanent visual impacts. Temporary impacts include the siting of construction equipment and the clearing of areas to construct the crossings. These would be mitigated by limiting vegetation clearing to the area in the construction limits and quick re-vegetation upon completion of construction. Permanent impacts would include the conversion of forests, wetlands, farmland, and rural landscapes to an Interstate highway.

The crossings in Section 4 are in a rural environment with a viewshed typical of a sparsely developed area dominated by forests with some farmland (mostly pastures) and residences. The Section 4 corridor is located within the Crawford Upland and Mitchell Plateau physiographic divisions. The Crawford Upland extends east from the southern terminus of Section 4 at U.S. Route 231 to the area around Harmony Road in Monroe County and is an unglaciated, rugged highland with considerable relief and varied elevations. The terrain ranges from nearly level bottomlands to gently/moderately sloping ridges. Some of the ridges in the Crawford Upland are deeply dissected by stream valleys that have steep to very steep walls. Rock outcrops are present at various locations throughout the Crawford Upland. There are many karst features located along the Greene/Monroe County line and north into Monroe County. The Mitchell Plateau is located at the northernmost end of the Section 4 corridor and is an unglaciated, somewhat flat to rolling plain underlain by Mississippian limestone.

The Section 4 corridor is dominated by forest. There is continuous forest between south of Koleen to State Route 45 in Greene County and along most of the Greene/Monroe County Line. The areas southwest of Koleen, between State Route 45, and east of Hobbieville in Greene County, and for most of the corridor in Monroe County are dominated by forests with occasional areas of pasture, small farms, or residences. There are small woodlots and wooded fencerows in agricultural lands at both the northern and southern termini of the Section 4 corridor.

Crossings 1 through 17 all have stream impacts within forests. Crossing 18 is located at the northern terminus of the corridor and is located in an area with agricultural fields and fence rows.

The proposed crossings would have a visual impact on the corridor. Views from the road would be limited by the road's position and design within the existing terrain and/or dense vegetation. There would be numerous excavations required to construct the road, some of

which would be greater than 90 feet below the existing ground. These areas of road would have many visual barriers for views from the road. In areas with rolling terrain, there would be views of the adjacent landscape though these views would be limited by vegetation and intervening terrain. There would be some panoramic vistas along the road, especially at Crossing 4, which would cross the Black Ankle Creek valley near Koleen in Greene County.

Direct views of the road from adjacent properties would be obstructed in many areas. Views of the road from most of the residences located in Greene County in the areas from just east of CR 600 East (east of Black Ankle Creek valley) to near SR 45 (Crossings 5, 6, and 7), and from just east of SR 45 to near CR 1250 East (just west of SR 54) (Crossing 8) would be obstructed by the deep excavations required to develop the highway grade and/or by intervening vegetation and terrain. Similar direct visual obstructions from residences due to deep roadway excavations and/or vegetation will also occur along the Greene/Monroe County line from just north of CR 35 North (Carmichael Road) to near Breeden Road (Crossings 11 and 12), and in Monroe County from Evans Lane to Rockport Road (Crossing 15) and the area from just east of Lodge Road to just south of Tramway Road in Monroe County (Crossing 17). In areas that have a rolling landscape, there would be some direct views of the road from nearby residences.

The Section 4 Tier II Record of Decision (ROD) states that the applicant would mitigate for the aesthetic impacts by incorporating context sensitive solutions, an approach involving all stakeholders to "develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility." Examples would include planting wildflowers as roadside enhancements and planting shrubs or trees to help screen the roadway. Aesthetics are highly subjective in nature and the applicant addressed this matter through minimization and mitigation.

General Environmental Concerns: Part of Greene County has been designated as a maintenance area for 8-hour ozone National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA). The county is currently in attainment of the standard and is under an approved maintenance plan. Bloomington and Monroe County are considered to be in attainment for all NAAQS.

There are no Metropolitan Planning Organizations (MPO) within Greene County. Therefore, in December 2010, the FHWA completed a conformity demonstration for Greene County's 8-hour maintenance area for the Interstate 69 Tier II Section 4 FEIS. The conformity demonstration found that the Interstate 69 Section 4 Tier 2 FEIS demonstrates conformity to the State Implementation Plan budgets as required by the conformity rule. FHWA, IDEM and the USEPA completed their reviews and found that the analyses and documentation met the criteria outlined in the conformity rule.

Because Greene and Monroe Counties are attainment areas for carbon monoxide (CO) and particulate matter (PM), hot-spot analyses are not required for conformity demonstration at the project level. Fine particulate matter emissions were not evaluated because they were not identified as an air quality concern at the regional or project level based on the required interagency consultation meetings. However, a CO hot-spot analysis was completed for the

Tier II FEIS for Section 4 to disclose impacts under NEPA.

For the CO hot-spot analysis, the results of the Existing Condition analysis indicated that the highest predicted 1-hour concentration of CO is 4.8 ppm, while the highest 8-hour concentration is 3.2 ppm.

The results of the Future No-Build Condition analysis indicated that the highest predicted 1-hour concentration is 2.6 ppm, while the highest 8-hour concentration is 1.6 ppm. When compared to the Existing Condition, the predicted 1-hour and 8-hour CO concentrations for the Future No-Build Condition are decreased at all receptor sites.

The results of the Build Alternative analysis indicate that the highest 1-hour concentration is 2.2 ppm, while the highest 8-hour concentration is 1.3 ppm. When compared to the Existing Condition, the 1-hour and 8-hour CO concentrations for the Build Alternative are predicted to decrease at all receptor sites. When compared to the Future No-Build Condition, the 1-hour and 8-hour CO concentrations for the Build Alternative are the same at almost all receptor sites. The results of the CO hot-spot analysis demonstrate that there would be no local air quality impacts of concern for CO.

The free-flow section analyses (which were measured at the worst case scenario locations) determined that the maximum 1-hour CO concentration for the Build Alternative is 2.3 ppm, while the highest 8-hour concentration is 1.4 ppm. None of the CO values pertaining to Interstate 69, either now or in 2030, are expected to exceed the ambient air quality standards mandated by USEPA.

In addition to the NAAQS, USEPA also regulates air toxics. The USEPA has identified a group of 93 compounds as mobile source air toxics (MSAT) and has also extracted a subset of this list of 93 that it now labels as the seven priority MSATs (acrolein, benzene, 1,3-butadiene, diesel particulate matter/diesel exhaust organic gases, formaldehyde, naphthalene, and polycyclic organic matter). Some of these toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics result from engine wear or from impurities in oil or gasoline.

The MSAT analysis estimated there would be increases in MSAT emissions in Greene County, Martin County, Monroe County, and the Total 5-County region plus localized increases in MSAT emissions for the Build Alternative versus the No-Build Condition because of the projected increase in Vehicle Miles Travelled in the future. However, MSAT emissions are projected to decrease substantially in the future as a result of new USEPA programs to reduce MSAT emissions nationwide. As a result, the Interstate 69 Section 4 project is expected to result in low potential MSAT effects. Additionally, the Interstate 69 Section 4 corridor is situated in a rural setting, which would tend to lessen any impact from MSAT emissions.

The proposed crossings would be located in rural areas and nearby communities would experience an increase in levels of construction-related noise temporarily and highway-

related noise in the long-term. FHWA and INDOT conducted a Highway Traffic Noise Analysis for the Tier II Section 4 EIS to determine the likely traffic noise impacts under both the initial design criteria and the low-cost design criteria. The analysis described and evaluated the existing noise levels, the predicted Future No-Build noise levels, and the predicted year 2030 noise levels for each of the alternatives, as well as a detailed Highway Noise Mitigation Assessment for the predicted traffic noise impacts associated with all the alternatives.

Existing noise level is defined as the noise, resulting from the natural and mechanical sources and human activity, considered to be usually present in a particular area during the period of the noise analysis. Existing noise levels for the Section 4 corridor were determined by measurements taken at the time of the day with the loudest hourly highway traffic noise levels occurring on a regular basis under normal traffic conditions. These measurements would be collected at 44 representative sets of receivers which were developed based on an evaluation of the topography, level of service of the existing local roadway and highways, and density and proximity of the receivers to the local roadways and highways. The number and location of the existing noise level measurement sites was established and existing measurements were obtained prior to the development of any of the proposed alternative alignments.

The future noise levels for the Future No-Build and Refined Preferred Alternative 2 were performed using the FHWA Traffic Noise Model (TNM), Version 2.5. The FHWA TNM estimates vehicle noise emissions based on mean (average) noise emission levels for four classes of vehicles: automobiles and light trucks, buses, medium trucks, and heavy trucks. The predicted noise levels for the Future No-Build Condition and Refined Preferred Alternative 2 was based on average daily traffic (ADT) and design hourly volume (DHV) projections for the year 2030. Features input in to TNM included roadway widths and elevations, receiver elevations and distances from roadways, intervening terrain and ground cover. Based on this input data, TNM uses its acoustic algorithms to predict noise levels at receiver locations by taking into account sound propagation variables such as atmospheric absorption, divergence, intervening ground, barriers, building rows, and vegetation.

The measured existing L_{eq} noise levels noise levels within the project corridor ranged from 66.1 dBA at a site located along State Route 45 near State Route 445 to 33.2 dBA at a residential front yard 310-340 feet from the Section 4 corridor. The existing measured L_{eq} for the site along State Route 45 approaches the Noise Abatement Criterion (NAC) of 67 dBA and is considered an existing traffic noise impact. None of the other existing noise levels recorded at the representative measurement sites approach or exceed the NAC.

The results of the noise analysis conducted for the Future No-Build Condition at the existing noise monitoring locations indicate that year 2030 predicted noise levels would range from 15.3 dBA L_{eq} at a seasonal residence on a private drive approximately 620-685 feet from the Section 4 corridor to 66.5 dBA L_{eq} at a site near State Route 45. The modeled design year no-build noise levels are shown to be more than 3 dBA lower than measured existing levels at 21 of the 44 representative sites. The decrease in the modeled predicted no-build results can be attributed to two possible factors: (1) the traffic volume experienced at the time of the existing condition measurement might be greater than the predicted

hourly traffic data available from the traffic model used as input into TNM to determine the Future No-Build 2030 levels, and (2) the ambient component observed during the existing noise level measurements could not be taken into account in the noise model for the year 2030 no-build condition. Two of the representative sites would be anticipated to have noise levels that approach or exceed the NAC of 67 dBA L_{eq}. The two future no-build impacts would be are located along State Route 45, just north of the intersection with State Route 445 and are both categorized as residential.

The results of the noise analysis for Refined Preferred Alternative 2 indicated that the year 2030 proposed noise levels would range from 45.9 dBA L_{eq} to 68.1 dBA L_{eq} with the initial design criteria and 45.9 dBA L_{eq} to 68.0 dBA L_{eq} with the low-cost design criteria. These predicted noise levels represent a difference from existing noise levels ranging from -11.8 dBA L_{eq} to +28.4 dBA L_{eq} for the initial design criteria and -12.0 dBA L_{eq} to +28.5 dBA L_{eq} for the low-cost design criteria. The decrease in predicted noise levels when compared to existing noise levels is attributed to a decrease of traffic volumes on the local roads and the fact that background noise components are not included in the model results for each modeled site. Refined Preferred Alternative 2 would result in 88 (initial design criteria) or 90 (low-cost design criteria) traffic noise impacts. Of these, 82 (initial design criteria) or 84 (low-cost design criteria) are substantial increase impacts (the predicted traffic noise levels exceed existing noise levels by 15 dBA or more) only and 6 (both initial and low-cost design criteria) are both NAC and substantial increase impacts. An evaluation of the substantial increase impacts indicate that 50 (initial design criteria) or 51 (low-cost criteria) of the impacts would experience a substantial increases between 15 and 20 dBA, 33 (initial design criteria) or 32 (low-cost criteria) of the impacts have substantial increases between 20 and 25 dBA, and 5 (initial design criteria) or 7 (low-cost design criteria) of the impacts have substantial increases of 25 dBA or greater. Since none of these impacted receivers exceed the NAC by 15 dBA or more, they are not considered to be severely impacted.

Noise abatement for the Section 4 Refined Preferred Alternative 2 was evaluated for all receptors that are predicted to experience noise impacts in design year 2030. This analysis resulted in the identification of 36 (both initial and low-cost design criteria) proposed noise barriers. The abatement analysis proceeded to determine feasibility and reasonableness of noise abatement at these locations. Based on the evaluation it was determined that 31 (initial design criteria) or 32 (low-cost design criteria) of the proposed noise barriers meet the feasibility requirement. None of the proposed noise barriers were determined to meet all three of the reasonableness criteria (none of the barriers meet the cost effectiveness criteria). Since none of the barriers were determined to be both feasible and reasonable, no noise barriers are proposed. A final determination on noise abatement for the Refined Preferred Alternative 2 will be made during the design phase. At such time, additional noise analysis will be performed to more accurately determine barrier performance, barrier characteristics (length and height), and the optimal barrier location for any potential noise barriers that may be recommended for noise abatement.

Fifteen of the eighteen proposed crossings would be located in areas with receptors predicted to experience noise impacts (predicted traffic noise levels exceed existing noise levels by 15 dBA or more and/or exceeding the NAC).

Wetlands: The proposed construction of the eighteen crossings would result in fill material being discharged into a total of 1.97 acres of open water, 4.90 acres of emergent wetland, 0.19 acres of scrub-shrub wetland, and 2.36 acres of forested wetlands. The existing wetlands provide a limited surface water storage function, but very limited or no flood protection is provided because the wetlands are restricted to a relatively small, localized portion of the watershed. Some subsurface water storage and groundwater recharge also occurs. The wetland hydrology is primarily driven by precipitation and overland flow. The wetlands would also be expected to provide the following functions: nutrient transformations and processing, biomass accumulation, decomposition, and wildlife habitat.

The proposed project was located and designed to minimize impacts to wetlands. A substantial percentage of the wetlands within the Section 4 corridor are located in the vicinity of the Black Ankle Creek valley. Direct impacts to wetlands by the proposed crossing (Crossing 4) would be minimized by the project design, which would involve constructing the crossing on bridge structure instead of discharging fill into "waters of the U.S."

Compensation for all of the wetland impacts would be provided through wetland creation and restoration at five of the 16 mitigation sites, which are discussed in detail in 8 below. All five sites are located in the Lower White watershed - the Veale Creek mitigation site, a 124.5-acre site is in Daviess County, and the West Fork mitigation site, a 168-acre site, the Doans Creek mitigation site, a 260-acre site, the Taylor Ridge mitigation site, a 250-acre site, and the Plummer Creek 2 mitigation site, a 193-acre site in Greene County. All five mitigation sites were historically disturbed to some degree through land clearing and agricultural practices. All five sites also have existing forested areas. A total of 18.4 acres of emergent, 8.43 acres of scrub/shrub, and 41.56 of forested wetland would be restored or enhanced as mitigation for the impacts to wetlands from the eighteen crossings for Section 4. Out of these totals, success would be required for 9.8 acres of emergent, 0.57 acre of scrub-shrub, and 7.25 acres of forested wetland to mitigate for the proposed project's impacts. All of the wetland mitigation areas would be protected in perpetuity.

If approved, during project construction wetlands that are within the Right of Way but outside of the construction area would be protected from secondary construction impacts. To prevent herbicides from entering these wetland areas, "Do Not Spray" signs would be posted as appropriate in the right-of-way. In conclusion, the proposed mitigation for wetland impacts would result in a neutral effect to wetland functions for the proposed project.

Historic Properties: FHWA completed Section 106 consultation for the Section 4 Tier II FEIS. They evaluated the aboveground historic properties listed above to determine the potential of the proposed project to generate visual and/or auditory effects. Along the entire Section 4 corridor, there is one property listed on the NRHP and eight that have been determined to be eligible for listing on the NRHP. All nine of these properties are located near crossings of "waters of the U.S."

Crossing 1 is located near the Scotland Hotel, which is listed on the NRHP, and the

Blackmore Store, which is eligible for listing on the NRHP. The Scotland Hotel was listed in 1993, for its association with commercial events that have made a significant contribution to the history of Greene County and town of Scotland. The Scotland Hotel was built in 1879 and was a popular destination for many traveling salesmen throughout the late nineteenth and early twentieth centuries. It also served as the boarding house for children of area farmers sent to Scotland to attend school. During the late 1930s, it was a lodging place for WPA workers engaged in a local recreation and wildlife project in nearby Martin County. The hotel is presently owned by the Scotland Historical Society, which was formed in 1971 to preserve the hotel and was responsible for its nomination to the NHRP in 1993. The Blackmore Store is a two story brick building constructed circa 1895 and is eligible for listing on the NRHP for its association with commercial activities that have contributed to the history of Greene County and the town of Scotland and as an excellent example of a late-nineteenth century commercial building with Italianate details. Located directly north of the Scotland Hotel, the Blackmore Store is one of the best examples of commercial architecture in the town of Scotland. The Blackmore Store was purchased and restored in 1984 by long-time Scotland residents and is open to the public occasionally as the Brickstar Studios, an art exhibition space. The FHWA determined that there would be visual and auditory effects upon the Scotland Hotel and the Blackmore Store properties but the effects would not be adverse.

Crossing 6 is located near Clifty Church, which is eligible for listing on the NRHP. The Clifty Church, a log meeting house constructed between 1861 and 1867, is a rare surviving example of this building type in the region and is eligible for the NRHP for its association with the social history of Greene County. In addition to Clifty Church, this property also contains three other contributing resources, including two shed-roofed privies (circa 1930s) with vertical wood siding and a well. The Clifty Church has been an important place of meeting for Greene County social and religious groups sporadically over the last 140 years. The site retains its historic setting and usage, the church building stands out as an excellent and lone surviving example of a log meeting house in the Study Area, and newer resources added in the 1960s attest to the property's continued use in the community well into the twentieth century. Despite some alterations made circa 1920s and 1940s, which have attained historic significance in their own right, this church retains integrity. It is, therefore, eligible for inclusion in the NRHP for its association with the social history of Greene County. The FHWA determined that there would be auditory effects upon the Clifty Church property but the effects would not be adverse.

Crossing 10 is located near Greene County Bridge No. 311, which is eligible for listing on the NRHP. Greene County Bridge No. 311 is a Warren Pony Truss Bridge built circa 1905 that carries CR 100 South over Indian Creek. This bridge is eligible for listing on the NRHP because it represents an early or distinctive phase in bridge construction, design, or engineering; it represents a variation, evolution, or transition that is conveyed through important features or innovations related to bridge construction, design, or engineering; and it represents a significant phase or feature of the work of a master. It is distinguishable when compared with similar structures and retains historic integrity necessary to convey engineering or design significance. The FHWA determined that there would be some increased noise for Greene County Bridge No. 311 but the effects are not considered adverse since this bridge is a transportation property and road noise is part of its setting.

Crossing 15 is located near the Koontz House, which is eligible for listing on the NRHP. The Koontz House, a side hall Greek Revival dwelling, was constructed circa 1865, and is eligible for its highly intact vernacular Greek Revival architecture which is the embodiment of the distinctive characteristics of a type, period, or method of construction. The FHWA determined that there would be an increase in noise for the Koontz House property but the effects would not be adverse since the increase would not be noticeable.

Crossing 18 is located near the Harris Ford Bridge, Stipp-Bender Farmstead, Monroe County Bridge No. 83, and Maurice Head House, which are all eligible for listing on the NRHP. The Harris Ford Bridge was originally constructed in 1887 in Warren County and in 2003 was relocated to create a crossing of Indian Creek on the Clear Creek Trail of the Bloomington Parks and Recreation Department. The bridge is an excellent example of a nineteenth century Pratt Through Truss and has only been modestly altered to accommodate its new pedestrian application. The Harris Ford Bridge is eligible for listing on the NRHP because it embodies the distinctive characteristics of a type, period, or method of construction. The FHWA determined that there would be no effects on the Harris Ford Bridge property. The Stipp-Bender Farmstead was established in 1876 and is representative of farming practices in Monroe Country in the second-half of the nineteenth century. The property remains highly intact, with five contributing outbuildings, a summer kitchen connected to the house by a breezeway, and a major segment of an intact stone wall that once surrounded the associated farm fields. The Stipp-Bender farmstead complex is eligible for listing on the NRHP for its association with the development of agriculture in Monroe County between 1876 and 1956. The FHWA determined that there would be auditory and visual effects on the Stipp-Bender Farmstead but the effects would not be adverse because there would be a minor increase in noise and ambient light levels. Monroe County Bridge No. 83 is a Warren Pony Truss Bridge constructed circa 1905 that carries Dillman Road over Clear Creek. This bridge is eligible for listing in the NRHP because it represents an early or distinctive phase in bridge construction, design, or engineering and a variation, evolution, or transition that is conveyed through important features or innovations related to bridge construction, design, or engineering. The bridge retains historic integrity necessary to convey its engineering significance. The FHWA determined that there would be no effect on Monroe County Bridge No. 83. The Maurice Head House is a rectilinear one-story Ranch house was built in 1956 by original owner Maurice Head. This house is significant for its high integrity of mid-century Ranch-style architecture in Monroe County. The FHWA determined that there would be auditory effect on the Maurice Head House property but the effects would not be adverse.

The finding of effects for Section 4, dated September 13, 2006, and modified July 15, 2010, and January 18, 2011 is: Historic Properties Affected – Adverse Effect. This finding is for sites located during archaeological surveys. There would be no adverse effects to aboveground historic properties in Section 4. The SHPO concurred with these findings in a letter dated February 15, 2011.

A Phase Ia archaeological survey was conducted for Section 4 to identify whether NRHP-eligible archaeological resources are located within FHWA's Area of Potential Effects (APE) and to determine what effect the proposed Interstate 69 undertaking could have on those resources. The APE was investigated through shovel testing, surface

collection/survey, and visual inspection. A total of sixty-five archaeological sites were identified within the APE. Two of these sites were re-identified at their previously recorded locations and sixty-three of these sites were previously unrecorded. The sixty-five sites included 15 prehistoric isolated finds, 35 prehistoric lithic scatters, 4 historic scatters/farmsteads, 7 multicomponent prehistoric/historic scatters, a historic logging feature, a historic excavation pit, a historic quarry, and a railroad spur. The FHWA recommended eleven individual sites within the Section 4 Refined Preferred Alternative 2 right-of way for avoidance or additional study and seven locations at creek crossings, including 2 locations at Black Ankle Creek (Crossing 4), one location at Mitchell Branch (Crossing 8), and four locations at Indian Creek (Crossing 10, 11, and 12), for Phase Ic archaeological investigations.

In addition to the Phase Ia archaeological survey, a historic context was prepared for the Virginia Ironworks and Victor Limestone areas. The context recommended a discontiguous Virginia Iron Works Archaeological District and a discontiguous Victor Limestone Archaeological District as eligible for the NRHP. Three individual sites within these two recommended-eligible districts are also in the right-of-way for Section 4; two of the sites were recommended as Contributing to the districts. All of these archeological sites are considered to be chiefly important for what information can be gained through data recovery and have little value for preservation in place.

The FHWA determined that there would be an adverse effect on the Virginia Iron Works and Victor Limestone Archaeological Districts and that the sites located in the right-of-way that contribute to the district do not warrant preservation in place. The SHPO concurred with these findings in a letter dated February 15, 2011.

FHWA and the SHPO, with INDOT as an invited signatory, entered into a Memorandum of Agreement (MOA) that was signed on May 12, 2011. Commitments for completion of additional archaeological investigations or avoidance at the eleven additional sites and Phase Ic investigations at the sites at the creek crossings sites are included in an MOA. If the results of further archaeological testing show that additional archaeological investigations or mitigation would be warranted, that work would be completed, in consultation with the Indiana SHPO and any appropriate consulting parties (for example, Native American tribes for prehistoric sites), before construction of the project could begin in those areas. Should any archeological discoveries be made that are subject to Section 4(f), these sites will be considered pursuant to 23 CFR 774.9(e). The MOA stipulates that the sites associated with the Virginia Iron Works and Victor Limestone Archaeological Districts would be documented per the Secretary of the Interior's Guidelines for Archaeological Documentation. Such documentation may include but not be limited to: plan view, photographs, profiles, cross section, and the collection of material samples. The Section 4 MOA also included general mitigation as part of a larger mitigation stipulation for the Interstate 69 corridor that was provided for in the Interstate 69 Tier 1 MOA.

In response to the Public Notice, the Corps received one comment expressing concerns on the proposed project's effect on "peace and serenity" of the National Historic Registry-listed Scotland Hotel and the National Historic Registry-eligible Blackmore Store. The FHWA determined that there would be visual and auditory effects upon the Scotland Hotel

and the Blackmore Store properties but the effects would not be adverse. The SHPO concurred with these findings in a letter dated February 15, 2011.

Fish and Wildlife Values: The proposed Section 4 corridor is predominately forested with numerous wildlife habitat areas. All 18 crossings of "waters of the U.S." would impact areas with wildlife habitat. The proposed corridor would impact upland habitat (including old field, mid-successional forest, forest fragment, dry mesic upland forest, mesic floodplain forest, and mesic upland forest), wetlands (emergent, scrub-shrub, and emergent), streams, and open water ponds. In addition, the proposed project would include crossing seven perennial streams: Black Ankle Creek (Crossing 4), Dry Branch (Crossing 5), Plummer Creek (Crossing 6), Mitchell Branch (Crossing 8), Indian Creek (Crossings 10, 11, and 12), and two unnamed tributaries of Clear Creek (Crossing 15).

The proposed bridge and culverts at the crossings were designed to minimize impacts to the streams and their aquatic habitat. Permanent fill would be placed into a total of 88,462 linear feet of stream consisting of 65,507 linear feet of ephemeral, 19,246 linear feet of intermittent, and 3,509 linear feet of perennial streams would be directly impacted by the proposed project. The applicant proposed to provide both on-site and off-site mitigation for the 88,462 linear feet of stream impacts.

To provide on-site mitigation, the applicant would use natural stream design to relocate 888 linear feet of Plummer Creek, 473 linear feet of Black Ankle Creek, 408 linear feet of an unnamed tributary to Mitchell Branch, and 1,398 linear feet of an unnamed tributary to Clear Creek. In addition, the applicant would mitigate impacts to a total of 8,166 linear feet of 2 intermittent streams and 11 ephemeral streams through the installation of step pools for grade control and the placement of natural substrate in the relocated portions of these streams that would be roadside ditches. The applicant proposes to use on-site mitigation to provide mitigation for a total of 11,333 linear feet of impact to streams.

The applicant proposes to provide off-site mitigation for the remaining 77,129 linear feet of permanent stream impacts through restoration/creation/enhancement at sixteen sites and preservation at one site. A total of 85,500 linear feet of stream, consisting of 41,853 linear feet of perennial, 8,575 linear feet of intermittent, and 35,075 linear feet of ephemeral, would be restored or enhanced at the 16 sites. The applicant is proposing to use 30.6 acres of forested wetland restoration consisting of 20 acres at the West Fork mitigation site, 2.8 acre at the Indian Creek 3 mitigation site, and 7.6 acre at the Indian Creek 1 mitigation site as out-of-kind mitigation for impacts to 30,600 linear feet of ephemeral streams. The applicant is also proposing preservation of 12,750 linear feet of ephemeral streams at the SR 45 mitigation site.

Nine of the off-site mitigation sites are located in the Lower White 8-digit HUC watershed (05120202). These sites are the Veale Creek mitigation site in Daviess County; and the West Fork site, Doans Creek site, Taylor Ridge site, Black Ankle site, Plummer Creek 1 site, Koleen site, Plummer Creek 2 site, and Beech Creek site in Greene County, Indiana. Eight of the off-site mitigation sites are located in the Lower East Fork White River 8-digit HUC (05120208). These sites are the Indian Creek 2 site, Indian Creek 3 site, Indian Creek 1 site, Mitchell Branch, and SR 45 site in Greene County; and the Indian Creek 4 site,

Indian Creek 5 site, and Eller site in Monroe County, Indiana. The mitigation sites are discussed in detail in 8.a(5) below. The proposed mitigation would provide a total of 8,571 linear feet more than what would be required to meet a 1:1 mitigation ratio for all impacted streams. For perennial streams, the proposed mitigation would provide 41,103 linear feet more of restored/enhanced streams than impacted; for intermittent streams, mitigation would provide 7,982 linear feet less of restored/enhanced streams than impacted; and for ephemeral streams, in-kind mitigation would provide 24,550 linear feet less of restored/enhanced streams than impacted.

The ephemeral and smaller intermittent streams that would be impacted for the construction of Section 4 are generally high gradient headwater streams with steep slopes that have little to no water flow the majority of the year. These channels convey storm water flow down the slopes into the larger streams located in the broader valleys, provide sediment transport (from detritus) from the upslope areas down to the valleys, and provide wildlife habitat. The water conveyance and sediment transportation functions of these channels would be maintained through the project area because drainage would be maintained through the right-of-way.

The availability of appropriate mitigation sites including ephemeral and intermittent streams was limited in the affected watersheds. The proposed project would impact upper headwater streams in natural wooded settings in hilly (karst) terrain. The Lower East Fork White River and Lower White River 8-digit watersheds are largely undeveloped in hilly or karst areas. Opportunities for mitigation for impacts to ephemeral and intermittent streams, apart from preservation, were few.

The applicant has proposed the restoration of forested wetlands as out-of-kind mitigation for the wildlife habitat functions lost through ephemeral and intermittent impacts. The wildlife habitat created by the forested wetlands would be similar to the habitat lost through impacts to the streams and their riparian habitat. While there are differences in wildlife habitat functions provided by streams and wetlands, the proposed wetland restoration would be located in close proximity to larger stream channels and would help to restore the riparian habitat diversity in the floodplains. The proposed wetland restoration would increase functions such as temperature regulation, sediment retention, nutrient and contaminant processing, flood mediation, wildlife habitat, and production of food web biomass. The ratio provided for this out-of-kind mitigation would be 1 acre of forested wetland restoration for 1,000 linear feet of stream impact.

Watershed Restoration Assessment Strategies (WRAS) were developed by IDEM for both the Lower East Fork White and Lower White 8-digit HUCs. A WRAS is a large-scale coordination plan for watersheds that are most in need of restoration developed by states, public agencies, private-sector organizations, and citizens. The two documents were not finalized, but a first draft of the Lower East Fork White WRAS was released in the spring of 2002 and a second draft of the Lower White WRAS was released in the spring 2000. These documents were intended to be "living documents" and the information within them was intended to be revised and updated periodically. While these documents have not been updated since their creation, they provide information that is useful in guiding watershed planning and restoration. In both watersheds, cutting and erosion of streambanks and water

quality impairment from excessive amounts of sediments, nutrients, and bacteria were identified as major concerns. The WRAS for both watersheds recommended management strategies including structural stabilization of specific streambank areas, protection of wetlands and riparian areas, and restoration of wetlands and riparian areas in disturbed areas. The proposed mitigation plan addresses these issues through the preservation and restoration of adjacent wetlands and riparian corridors and, in some areas, in-stream measures. The restored riparian corridors and wetlands would serve as buffers to agricultural and urban land, reduce the sediment load coming from the eroded streams, provide shading of the channel which would reduce water temperature, and increase wildlife habitat located along these stream channels. In addition to the restoration and preservation provided for Section 404 CWA permitting, the applicant would provide preservation of 67.4 acres of wetland and 113,215 linear feet of streams at 20 additional mitigation sites for Section 7 ESA mitigation. Although the applicant is not asking for mitigation credit for impacts to "waters of the U.S." under Section 404 CWA for this preservation, it would still have the effect of ensuring that these areas continue to benefit water quality in the watersheds.

Considering the proposed preservation at the SR 45 mitigation site, out-of-kind mitigation, and the total 9,311 linear feet of excess stream restoration/enhancement, the proposed mitigation would adequately compensate for the impacts and would result in more functional capacity than currently exists.

Habitat for aquatic organisms adapted to living in the seasonally flooded pools in the wetlands proposed to be filled would be eliminated by the project. This adverse impact would be minimized by the proposed wetland mitigation. The proposal would result in only minimal loss of benthic life from the fill activity within the White River, its tributaries, and jurisdictional wetlands.

In many areas of Section 4, the forested tracts span the entire corridor width. Impacts to forested habitat types would be unavoidable. Initial measures to avoid wildlife habitat were taken in Tier I of the NEPA process. Wildlife habitat was avoided and/or minimized during development of alternative corridors.

Since the Section 4 corridor traverses extensive forested tracts for the majority of its distance, there would be a loss of upland forest habitat in connection with the construction of all of the crossings. The loss associated with these crossings would be mitigated. The mitigation would be part of the overall mitigation for loss of upland forest habitat for the entire Section 4 alignment, which consists of the creation of 1,040 acres and the preservation of 2,705 acres of forested habitat. This mitigation is discussed in more detail in 8.a(6). This habitat combined with the habitat provided by the wetland and stream mitigation would provide adequate compensation for lost wildlife habitat resources although local wildlife communities would suffer long-term negative impacts. Wildlife communities in the area of the mitigation sites would benefit.

One comment was received in response to the public notice objecting to the mitigation for impacts to forest, stating that it was insufficient. The mitigation for non-wetland forest, which is generally outside the Corps' scope of analysis, was coordinated with the USFWS

as part of mitigation requirements for the Tier 1 BO and Section 4 Tier 2 BO.

Other measures that would be taken during construction to avoid or minimize impacts to aquatic and terrestrial species and their habitat are discussed in 8.a(6).

The applicant coordinated with the USFWS to determine the potential impacts to Federally-listed threatened and endangered species. This coordination and the impacts to such species are discussed in 7.b.

The applicant coordinated with the Indiana Department of Natural Resources to determine potential impacts on state-listed species. The proposed crossings are within the range of the following State-listed species: the state-listed endangered Jordan cave isopod (*Caecidotea jordani*), Mayfield cave beetle (*Pseudoanophthalmus shilohensis mayfieldensis*), Hidden springsnail (*Fontigens cryptica*), Jeannel's groundwater ostracod (*Pseudocandona jeanneli*), Ray's cave beetle (*Pseudanopthalmus* undescribed species), Krekeler's cave ant beetle (*Batrisodes krekeleri*), Crawfish frog (*Rana areolata circulosa*), Henslow's sparrow (*Ammodramus henslowii*), Barn owl (*Tyto alba*), Cerulean Warbler (*Dendroica cerulea*), Loggerhead shrike (*Lanius ludovicianus*), Northern harrier (*Circus cyaneus*), Indiana bat (*Myotis sodalis*), Evening bat (*Nycticeius humeralis*), Kirtland's snake (*Clonophis kirtlandii*), and Timber rattlesnake (*Crotalus horridus*); the state-listed threatened Fountain cave springtail (*Pseudosinella fonsa*), the state-listed rare Black-fruit mountain-ricegrass (*Oryzopsis racemosa),* Mercury (*Acalypha deamii*), Golden alexanders (*Zizia aptera*), Barr's commensal cave ostracod (*Sagittocythere barri*), and Hilly springtail (*Pseudosinella collina*); and the state-listed species of special concern Eastern spadefoot (*Scaphiopus holbrookii*), Common Mudpuppy (*Necturus maculosus*), Hooded Warbler (*Wilsonia citrina*), Red-shouldered hawk (*Buteo lineatus*), Sharp-shinned hawk (*Accipiter striatus*), Little brown bat (*Myotis lucifugus*), Eastern tricolored or pipistrelle (*Perimyotis subflavus*), Eastern red bat (*Lasiurus borealis*), Northern myotis (*Myotis septentrionalis*), Silver-haired bat (*Lasionycteris noctivagans*), Hoary bat (*Lasiurus cinereus*), Bobcat (*Lynx rufus*), Badger (*Taxidea taxus*), Least weasel (*Mustela nivalis*), Western ribbon snake (*Thamnophis proximus*), Rough green snake (*Ophoedrys aestivus*), and Eastern box turtle (*Terrapene carolina*), and the state endangered candidate Ashcraft Cave springtail (*Pygmarrhopalites ashcraftensis*). Appropriate habitat for each of these species would be adversely impacted by the proposed crossings.

Flood hazards: The proposed crossings would be sized appropriately to allow the unimpeded flow of the White River and its tributaries. The flood control functions provided by the existing wetlands at Crossings 1, 3, 4, 5, 6, 8, 12, and 14 would be mitigated through the creation or restoration of wetlands at the May/Heubner, Hart, Malone, New Fashion Pork, and Clark/Coble mitigation sites which are located in the same 8-digit HUC watersheds as the proposed impacts. The proposed crossings should not adversely affect existing flood control functions.

The proposed crossings in Section 4 would be sized so that the 100-year floodway elevations would not be substantially affected. There would be no indirect or cumulative adverse effect on flood control functions from these crossings. There would be no significant change in flood risk due to Interstate 69 and there would be no increase in

potential for interruption or termination of emergency service or emergency evacuation routes.

One comment was received in response to the public notice expressing concern about an increase in flooding on a specific property. The applicant responded that all bridge designs would be in compliance with the Indiana Flood Control Act which was enacted to protect property owners. The two structures that would be constructed on this specific property have been sized to provide sufficient flow to handle the regulatory flood, defined as the flood having a 1% probability of being equal or exceeded in a year (commonly known as the "100 year flood"). Therefore, no additional flooding should occur from the construction of the structures on this property.

Floodplain values: Longitudinal and transverse floodplain encroachments would be minimized, where reasonable, through design practices such as longer bridges and perpendicular stream crossings. The applicant would perform hydraulic analysis to ensure that the proposed crossings would not result in significant increases in flooding. The openings of the proposed bridges over Black Ankle Creek (Crossing 4), Plummer Creek (Crossing 6), Indian (Crossings 10, 11, and 12), and two unnamed tributaries to Clear Creek (Crossings 17 and 18) would be sized so that 100-year floodway elevations would not be substantially affected. There would be no significant change in flood risk due to Interstate 69 and there would be no increase in potential for interruption or termination of emergency service or emergency evacuation routes. Flood easements may be acquired if determined appropriate. The wetlands created or restored as mitigation for wetland impacts would provide an expanded area for flood storage in the watersheds.

Land use: The proposed crossings would have an impact on land use. They would convert property that is currently wooded or agricultural for Interstate 69 right-of-way. Both Greene and Monroe Counties have developed comprehensive plans that include plans to protect natural resources, manage growth and promote economic growth spurred by Interstate 69. The entire corridor of Section 4, including the eighteen crossings, has been incorporated into local land use classifications.

The applicant forecasts that the indirect land use changes as a result of the proposed project would be the conversion of 106 acres from agricultural land use and 54 acres from forest land use as a result of the proposed project. The conversion would be to residential or commercial land use and would occur in and around the Interstate 69 corridor.

The proposed project would impact local travel patterns in the project area. The applicant held discussions with emergency responders, school districts, and the general public to determine what routes were considered critical for access to their service areas. As a result of the discussions, the project was designed to include the following: a loop interchange at the Victor Pike/SR 37 intersection to maintain access to SR 37 from Victor Pike; a connector road on the south side of Interstate 69 to connect County Road 1250 East to SR 54 since County Road 1250 East would be severed at Interstate 69; appropriate combination of grade separations and road closings along local roads to maintain local access for emergency responders.

Shore erosion and accretion: No adverse effect to erosion and accretion rates or patterns is expected from any of the crossings in Section 4. Erosion control measures, which are discussed in more detail in 8.a(6), would be implemented on the worksites to protect the waterways from receiving increased sedimentation from the work area.

Recreation: There are no known publicly-owned parks, recreation areas, or wildlife or waterfowl refuges within the corridor for Section 4. The 806-acre Combs Unit of the 7,863-acre Martin State Forest is managed by the IDNR Division of Forestry and is located in close proximity to the Section 4 corridor, extending from the Taylor Ridge area east to Koleen, in Greene County. The Martin State Forest provides opportunities for dispersed recreational activities, such as primitive camping, hunting, fishing, picnicking, bird watching, and hiking. The area is managed as a forest, with timber harvested occasionally. There is no specific management plan that describes the Combs Unit's primary function as a sanctuary or refuge, nor are there any goals or objectives in a management plan that describe a sanctuary or refuge function. None of the proposed crossings would impact the Combs Unit of the Martin State Forest.

The proposed construction of Section 4 of Interstate 69 would improve access to the Hoosier National Forest, Indiana University and Monroe Lake, all of which are located in Monroe County.

Water supply and conservation: In the Section 4 project area, public drinking water is supplied by private wells and by municipally-owned systems. Three public water utilities service the Section 4 area –Eastern Heights Utilities, Van Buren Water, Inc., and Southern Monroe Water Company.

Eastern Heights Utilities, Inc., located in Bloomfield, Indiana, covers the Greene County portions of the Section 4 corridor and extends partially into western Monroe County. It obtains water from groundwater wells and its closest well to the Section 4 corridor is along the White River near Newberry, Indiana, which is west of the Section 3/Section 4 terminus and 4.84 miles away from Section 4. This well is developed in the White River Aquifer. No impact to this well is anticipated as a result of construction within the Section 4 corridor.

Van Buren Water, Inc. serves portions of Richland, Van Buren and Clear Creek Townships in Monroe County. Its service area includes the portion of western Monroe County in the Section 4 corridor. Southern Monroe Water Company serves much of the lower portion of Perry Township, Clear Creek Township, and continues into a small northern portion of Lawrence County. Southern Monroe Water Company service area extends into the Section 4 corridor along Bolin Lane. Both Van Buren Water and Southern Monroe Water Company obtain water from the City of Bloomington. The source for this water is Lake Monroe. The Section 4 corridor is closest to Lake Monroe at its north terminus where the closest drainage to Lake Monroe is 2.5 miles away, and is separated by Clear Creek. No impacts to Lake Monroe, Van Buren Water, Inc., or Southern Monroe Water Company water supplies are anticipated to result from construction within the Section 4 corridor. Any utility relocation plans required in connection with the crossings would be coordinated with the utility companies during the final design phase of the project.

No public water wells would be impacted by the construction of Section 4. There are 7 private ground-water wells that are within the right-of-way limits for the proposed project. The road surface stormwater runoff from the proposed construction of Section 4 could affect drinking water obtained from private wells. The applicant has made a firm commitment to take measures to perpetuate any active groundwater flow paths and protect water quality. During construction, INDOT's Standard Specifications and BMPs would be implemented to minimize the temporary impacts that roadway construction can cause to groundwater.

Water quality: During construction, fill material would be placed in wetlands at Crossings 1, 5, 6, 8, and 12. Since these waters would be eliminated as a result of the proposed project, water quality impacts would be considered long-term adverse impacts without mitigation. The applicant has proposed mitigation for wetland impacts from these crossings through wetland creation or restoration at five mitigation sites. Water quality impacts to streams would be limited to the construction period and would be considered temporary. Best management practices would be utilized to stabilize the fill and minimize water quality impacts to adjacent streams.

Two comments were received during the public comment period expressing concern with the proposed project's indirect impacts to water quality and one comment was received expressing concern with the quality of fill material that would be used. Any indirect impacts to water quality from increased surface runoff would be mitigated for on- and off-site. In addition, while the source of fill material has not been identified, the earthen fill material would comply with INDOT's 2010 Standard Specifications, which require borrow material to be "free of substances that will form deleterious deposits, or produce toxic concentrations or combinations that may be harmful to human, animal, plant or aquatic life, or otherwise impair the designation uses of the stream or area." Therefore, in accordance with 40 CFR 230.60(c), no chemical or biological testing is required to make the factual determination of this fill material.

There are both consolidated (bedrock) and unconsolidated aquifers in the Section 4 corridor. Groundwater is available from consolidated aquifers over the majority of the Section 4 Corridor, beginning at Taylor Ridge in Greene County and extending northeast to the north terminus of the Section 4 corridor. From Taylor Ridge to SR 54 in Greene County, the major hydrogeologic units are limestones of the West Baden and Stephensport groups with Beech Creek Limestone being the major hydrogeologic unit. From SR 54 to Harmony Road in Monroe County, the major hydrogeologic units are limestones of the Upper Blue River, West Baden, and Lower Stephensport groups, which include the Paoli, Beaver Bend, and Beech Creek limestones. From Harmony Road to the north terminus at SR 37, the major hydrogeologic units are limestones of the Sanders and Blue River groups, which include the Harrodsburg, Salem, St. Louis, and Ste. Genevieve limestones. The consolidated aquifers in the Section 4 corridor are highly variable. On average, wells yield less than 10 gallons per minute (gpm). However, wells that intersect fracture zones and karst conduits can have greater yields.

The single unconsolidated aquifer in the Section 4 study area consists of medium to fine

glacial sands of the Jessup Formation. The aquifer lies in Greene County between US 231 and Taylor Ridge. The aquifer thickness typically ranges from 5 to 150 feet with yield rates of 100 to 2,000 gpm.

The proposed project has the potential to adversely affect recharge to karst features in the project area, including the above-mentioned Cave C, Cave E, Spring A, and Cave G. These impacts would be mitigated through implementation of the 2012 Interstate 69 Section 4 Karst Agreement. Impact to recharge would be local and minimal and would not be large enough to have an adverse effect on aquifer recharge.

Energy needs: The proposed crossings and the construction of Section 4 would lead to an increase in the energy consumed by vehicle travel in the project area. The increase in roadway miles and diversion of through traffic from outside the Interstate 69 corridor would result in an increase of total vehicle-miles of travel in the project area. The increase in energy consumption is necessary to achieve the project's purposes. These impacts would be permanent.

Safety: The proposed crossings are part of a larger project that would improve traffic safety by reducing the number of automobile crashes. The proposed Interstate 69 extension would result in more trips being made on a limited-access, multilane interstate highway where average travel speeds will be higher and the crash rates lower than on existing roadways in the region. There would be an increase in the total number of accidents due to the added through traffic from other interstates and principal arterials outside of the project area. However, the crash frequency would be reduced. The impact of the project on safety, if constructed, would be positive and long-term.

The construction of Section 4 would change traffic volumes on local roads as traffic is diverted to Interstate 69 and as local roads feed the interchanges of Interstate 69. For the design year 2030, the construction of Section 4 would cause a decrease in traffic along all sections of state highways in the Section 4 FEIS Traffic Study Area including SR 45/SR 58 from east of US 231 to the SR 45/SR 58 intersection (at the Crane NSWC north Gate) in Greene County, SR 45 from the SR 45/SR 58 intersection in Greene County to SR 37 in Monroe County, SR 54 from north of the SR 58 Junction (south of the Interstate 69 corridor) to west of SR 445 in Greene County, SR 445 between SR 45 and SR 54 in Greene County, and SR 37 at the Interstate 69 interchange and south of Victor Pike.

The applicant reviewed the Level of Service for the state highway sections and local roads to identify undesirable or congested traffic flow conditions. The proposed project would not adversely affect traffic flow along the state highways or local roads in the corridor area. The proposed project would provide beneficial traffic impacts for SR 45 from SR 445 in Greene County to Harmony Road/Garrison Chapel Road in Monroe County, for SR 45/SR 58 east of CR 200E in Greene County, and along the short segment of common route for SR 45/SR 54 southeast of Cincinnati in Greene County. These beneficial impacts would occur where congested conditions under the future No-Action Condition would become uncongested with the proposed construction of Section 4. The proposed project would also provide a limited beneficial impact along SR 54 west of SR 445 and SR 45 from Harmony Road/Garrison Chapel Road to Curry Pike in Monroe County. All impacts to

traffic and transportation patterns would be permanent.

The proposed project includes grade separations at 13 local roads, SR 45, and SR 54 in order to maintain existing traffic flow. Eleven local roads are proposed to be closed to through access across Interstate 69 with 3 additional local roads being eliminated by the construction. Seven access roads are also proposed in order to maintain current travel patterns or for property access. Additionally, a frontage road, planned by Section 5, would provide for continuity of travel to the north for That Road to Rockport Road on the east side of Interstate 69.

Food and fiber production: The proposed crossings would have an adverse impact on food and/or fiber production. The riparian corridors immediately adjacent to some of the streams at the proposed crossings have been cultivated. Construction within the riparian corridor of these streams would result in some loss of acres harvested. Impacts to farmland were unavoidable and were minimized by following property lines to avoid/minimize severances, crossing fields at perpendicular angles to avoid/minimize point rows, providing access to parcels that would otherwise be landlocked, and maintaining the connectivity of county crossroads. These impacts would be permanent. The measures taken to minimize impacts are discussed in more detail in 8.a (6).

Fourteen of the eighteen proposed crossings are located in or near an area designated as prime and unique farmland. The entire Section 4 corridor would convert approximately 500 acres of prime and unique farmland to an Interstate Highway. These impacts are necessary to attain the project goals. The Natural Resources Conservation Service (NRCS) assessed impacts to farmlands for the Tier 2 Section 4 FEIS and determined that the proposed alignment would have no significant impact to farmland.

Mineral needs: Crossings 1 through 14 would have no impact on mineral needs as no known mineral resources exist within the area of those proposed crossings. The construction of Crossings 15 through 18 of Section 4 would result in the loss of 278 to 359 acres of potentially marketable limestone. The construction of Crossing 18 would impact one abandoned limestone quarry. Impacts to potentially marketable limestone were unavoidable. No mitigation would be provided for impacts to known limestone deposits which are not commercially owned. Blasting specifications would be implemented during roadway construction to prevent damage to adjacent potentially marketable limestone resources. Any limestone material that would be removed from roadway cut sections would be incorporated into the roadway either as fill or would be crushed and used as roadway base.

Consideration of property ownership: Along the entire Section 4 right of way, owners of 23 parcels declined INDOT's offer to purchase their acreage. The 23 parcels represent 167.4 acres of the 1746 total acres in the Section 4 right of way. These 23 parcels would be condemned.

All adjoining property owners were mailed a copy of the public notice to provide an opportunity for comment. No comments were received. Adjoining property owners should not be adversely affected by the proposed crossings.

Needs and welfare of the people: The public and private need for the proposed project is to provide improved regional accessibility and interstate and international movement of freight. The proposed project would provide improved access and safety, support for economic development, and relief of traffic congestion. The improved access to interstate destinations would benefit those visiting local community facilities and those traveling from local community facilities to distant locations. The proposal would provide employment during construction and after for maintenance of the proposed crossings. Indirectly, the changes in land use due to development induced by improved access are expected to yield an increase in business and employment.

b. Endangered Species Act. ☐ NA

The proposed project:

(1) Will not affect these threatened or endangered species:
☐Any/☐ *Explain.*

(2) May affect, but is not likely to adversely affect:
Species: Eastern fanshell mussel (*Cyprogenia stegaria*). *Explain.* During the applicant's coordination for the Tier 1 NEPA studies, the USFWS indicated that the proposed Interstate 69 corridor is within the range of the Eastern fanshell mussel (*Cyprogenia stegaria*). USFWS's Revised Programmatic Biological Opinion (BO) for Tier 1 indicated that the Interstate 69 project is "not likely to adversely affect the eastern fanshell mussel." USFWS's Section 4 Tier 2 BO stated there are no additional adverse effects anticipated beyond those discussed in the Tier 1 BO.

(3) ☐Will/☒Will not adversely modify designated critical habitat for the Indiana bat (M*yotis sodalis*). *Explain.* During the applicant's coordination for the Tier 1 NEPA studies, the USFWS indicated that the proposed Interstate 69 corridor is within the range of the Federally-listed endangered Indiana bat (*Myotis sodalis*). The USFWS's Revised Programmatic BO for Tier 1 indicated that the Interstate 69 project "is not likely to adversely modify the bat's designated Critical Habitat." The Section 4 Tier 2 BO stated that there are no additional adverse effects anticipated beyond those discussed in the Tier 1 BO.

(4) ☐Is/☒Is not likely to jeopardize the continued existence of the Indiana bat (*Myotis sodalis*) and the bald eagle (*Haliaeetus leucocephalus*). *Explain.* During the applicant's coordination for the Tier 1 NEPA studies, the USFWS indicated that the proposed Interstate 69 corridor is within the range of the Federally-listed endangered Indiana bat (*Myotis sodalis*) and the Federally protected bald eagle (*Haliaeetus leucocephalus*). The USFWS's Revised Programmatic BO for Tier 1 indicated that the Interstate 69 project "is still likely to adversely affect but not jeopardized the bald eagle" and "is not likely to jeopardize the continued existence of the Indiana bat." The Tier 1 USFWS BO contained an "incidental take" statement that included reasonable and prudent measures necessary and appropriate to minimize take of Indiana bats.

Mist net surveys were conducted for the Tier 2 BO and four maternity colonies were identified near Section 4, in the vicinity of Doan's, Plummer, and Indian Creeks and Little Clifty Branch. The Section 4 Tier 2 BO states that "it is the Service's biological opinion that Section 4 of the Interstate 69 Project, by itself or when considered in conjunction with the larger Interstate 69 project from Evansville to Indianapolis, is not likely to jeopardize the continued existence of the Indiana bat." USFWS further stated: "with successful implementation and maturation of the proposed mitigation projects, permanent protection of two Priority 1A hibernacula, and other proposed mitigation and conservation measures, we anticipate that long-term habitat conditions for these colonies will be suitable and sustainable for the long-term survival and recovery of the species." The Tier 2 BO contains an "incidental take" statement with additional reasonable and prudent measures that would be implemented along with the Tier 1 measures to minimize incidental take of Indiana bats.

A comment was received in response to the public notice asserting that the potential impact of White Nose Syndrome on the Indiana bat was not considered in the evaluation of impacts. The USFWS evaluated White Nose Syndrome in their Section 2 Tier 2 BO and included this evaluation in their decision process.

(5) The Services ☐concurred/☒provided a Biological Opinion(s). *Explain.* The USFWS issued a Revised Programmatic BO for Tier 1 on August 24, 2006 and a Section 4 Tier 2 BO on July 6, 2011. The issuance of the Tier 2 BO concluded formal Section 7 consultation in Section 4.

c. Essential Fish Habitat. Adverse impacts to Essential Fish Habitat ☐will/☒will not result from the proposed project. *Explain.* No Essential Fish Habitat would be impacted by the proposed project.

d. Historic Properties. The proposed project ☒will have an effect/☐will not have any effect on sites listed, or eligible for listing, in the National Register of Historic Places, or otherwise of national, state, or local significance based on ☐letter from SHPO/☒ FHWA's finding of effects dated September 13, 2006, and modified July 15, 2010, and January 18, 2011. *Explain.* FHWA issued a finding of effects for Section 4 which concluded: Historic Properties Affected – Adverse Effect. The effects are discussed in 7.a. above. An MOA was entered into between FHWA and SHPO on May 12, 2011, to address the adverse effects. FHWA is responsible for ensuring compliance with the terms of the MOA.

e. Cumulative & Secondary Impacts. The geographic area for this assessment is the Lower East Fork White and Lower White watersheds.

(1) Baseline. (from Indiana Rapid Watershed Assessments http://www.in.gov/isda/2348.htm) Approximately 2% of the Lower East Fork White; and 2% of the Lower White watershed areas are water and wetland. The Lower East Fork White watershed (HUC 05120208) has approximately

1,453 miles of stream of which 796.7 miles are first order, 253.5 miles are second order, 196.1 miles are third order, 43.6 miles are fourth order, 0 miles are fifth order, and 128 miles are sixth or higher order streams. The stream order for 34.8 miles of stream is not available. The Lower White watershed (HUC 05120202) has approximately 1,127 miles of stream of which 633.5 miles are first order, 212.7 miles are second order, 82.9 miles are third order, 8.5 miles are fourth order, 39.2 miles are fifth order, and 129.3 miles are sixth or higher order. The stream order for 19.9 miles of stream is not available.

The Lower East Fork White watershed covers thirteen different Indiana counties and has a drainage area of just over 1,295,100 acres. The land use in the watershed has been determined to be 13% Crops, 60% Forest, 19% Pasture/Hay, 2% Water or Wetland, and 6% Urban. Major resource concerns identified in the rapid watershed assessment conducted by NRCS included surface water quality, ground water quality, and soil quality. Approximately 6.5 percent (94 miles of the 1,453 total miles) of the streams within the watershed have identified impairments. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing an unbalanced fish community with depressed populations and limited diversity. The watershed has in excess of 720,600 acres of soils with high leaching index (> 10) which allows containments on the land surface to be carried easily into the ground water from infiltrating water. Karst topography represents 61%, over 796,800 acres, of the watershed. Because of these conditions, non–point pollutants such as fertilizers, pesticides, and livestock waste have the potential to contaminate the ground water aquifer. Currently. there are 3,700 acres of wellhead protection areas in the watershed. The watershed has over 171,900 acres of soils subject to soil erosion. Over 447,400 acres erode at twice the tolerable level or "T" and just over 1,000 acres are subject to wind erosion. There have been a variety of conservation practices implemented within the watershed. Between 2002 and 2007, landowners have implemented over 19,000 acres of No-Till, approximately 53,900 feet of upland buffers, and just over 2,200 acres of aquatic buffers. Wildlife habitat has been improved or established on more than 12,700 acres within the watershed and just over 4,600 acres of forestry practices have been applied.

The Lower White watershed covers eleven different Indiana counties and has a drainage area of just over 1,071,300 acres. The land use in the watershed is 33% Crops, 41% Forest, 16% Pasture/Hay, 2% Water or Wetland, and 8% Urban. Major resource concerns identified in the rapid watershed assessment conducted by NRCS include surface water quality, ground water quality, and soil quality. Approximately 26.8 percent (301 miles of the 1,126 total miles) within the watershed have identified impairments. Excessive amounts of sediments, nutrients, and bacteria degrade the water quality causing an unbalanced fish community with depressed populations and limited diversity. The watershed has in excess of 597,200 acres of soils with high leaching index (> 10) which allows containments on the land surface to be carried easily into the ground water from infiltrating water. Because of this condition, non–point

pollutants such as fertilizers, pesticides, and livestock waste have the potential to contaminate the ground water aquifer. Currently, there are 14,100 acres of wellhead protection areas. The watershed has over 324,900 acres of soils subject to soil erosion. Over 192,700 acres are eroding at twice the tolerable level or "T" and just less than 1,000 are acres subject to wind erosion. There have been a variety of conservation practices implemented within the watershed. Between 2002 and 2007, landowners have implemented over 22,200 acres of No-Till, approximately 252,300 feet of upland buffers, and just over 2,800 acres of aquatic buffers. Wildlife habitat has been improved or established on more than 12,200 acres within the watershed and just over 4,900 acres of forestry practices have been applied.

The watersheds that the eighteen proposed crossings are located in have been substantially modified in the past 200 years. However, in the proposed project area, the watersheds are relatively undeveloped because the area is dominated by rugged terrain with gentle to very steep slopes, making the land largely unsuitable for agriculture or commercial/residential development. Approximately 29% of the corridor has been developed for agriculture. The remaining portion is forested, wetland, or abandoned limestone quarries. The impacts to "waters of the U.S." in the project corridor have been mainly from the development of agricultural fields and associated residences. In addition to wetland fill, streams were channelized and relocated to facilitate the cultivation of the land. It is estimated the state of Indiana has lost approximately 87% of the wetlands that were present in the 1780s (Dahl, 1990). The impact from each individual crossing would be in the immediate area of the crossing. Cumulative impacts to the watersheds would be minimal since a very small proportion of each watershed would be impacted by each crossing and appropriate mitigation would be implemented to further ensure minimization of impacts.

A search of the Corps database and project files was conducted for projects within 2 miles of the Section 4 corridor. The search was limited to a 2 mile radius because impacts from the crossings would be negligible beyond this area. The search revealed that Corps permits have authorized the fill of approximately 2.1 acres of wetland and 6,771 linear feet of stream. These impacts were primarily from road projects, mainly crossing maintenance and the construction of Section 3 of Interstate 69. There were also impacts from utility relocations that are taking place for the construction of Interstate 69. The permits associated with the projects that created the greatest impacts, Section 3 of Interstate 69 (2,605 linear feet of stream and 1.78 acres of wetland within 2 miles of Section 4) and the impoundment of an unnamed tributary to Clifty Creek (2,352 linear feet of stream and 0.15 acre of wetland) required wetland and stream mitigation to replace lost functions within the watersheds. Since there is missing information in both the database and project files, there have been more impacts than those that are quantified above.

The projection is that Section 404 CWA authorizations would increase due to

the construction of the proposed projects. The FEIS projected that a total of 160 acres of new development would be induced by the construction of Section 4 within Greene and Monroe Counties, including both residential and commercial development by 2030. Indirect impacts from induced growth were expected to affect 160 acres of agricultural land and 54 acres of forest land. The majority of the predicted development would occur near the interchanges with US 231 (Crossing 1), the Greene/Monroe County Line (Crossing 11), and SR 37 (Crossing 18). It is likely that some of this development would require Section 404 CWA authorization for wetland fill or stream crossings. Any such induced development would be required to avoid, minimize, and mitigate for any impacts to "waters of the U.S." There are no natural resource issues of particular concern from Corps and non-Corps activities.

(2) Context. The proposed project is ☐typical of /☒a precedent for/☐very large compared to /☐ other activities in the watershed.

There are many other road crossings in the area, but Interstate 69 would be the first Interstate built in the area. Each separate and complete crossing for this project would have larger impacts than historic projects, which involved road crossings for local and county roads and State and US Routes. Future conditions in the project area are expected to remain mainly forested in nature. Section 4 of the Interstate 69 Evansville to Indianapolis extension would end in Bloomington and some induced residential development is expected. Besides Corps authorized projects, other past and present activities include maintenance of agricultural fields and the construction of associated buildings and residences.

Resulting natural resource changes and stresses from construction of residential areas would include conversion of woods, streams, and wetlands into homes and lawns. While impacts from residential construction are expected to increase because of population increases and the construction of Interstate 69, authorization under Section 404 of the Clean Water Act would be required for any placement of fill into "waters of the U.S." Avoidance, minimization, and mitigation measures would be required for any residence requiring a permit. Natural resource changes and stresses from agricultural activities include the continued erosion of sediments and runoff of herbicides, pesticides, fertilizer, and animal waste into surface waters. Most agricultural operations have farmed or created pastures on all suitable land, leaving unsuitable land as woods. Conversion of these woods is not expected.

The key issues of concern in these watersheds are loss of streams and wetlands, water quality, and habitat fragmentation. Since the applicant is providing mitigation within the two watersheds, there would be no significant secondary or cumulative impacts from the proposed project related to these issues. The applicant's proposed mitigation would offset impacts to streams from the proposed crossings and result in a net increase in wetland acres in the affected watersheds. Water quality issues are addressed in the applicant's Section 401

Water Quality Certification. The crossings would cause some habitat fragmentation as the project dissects a large forested area. Fragmentation was minimized to the greatest extent possible. The proposed mitigation would include creating forests and forested wetlands in cultivated fields, creating large blocks of forest and decreasing the fragmentation in the mitigation areas, which are all close to the Interstate 69 corridor.

(3) Mitigation and Monitoring. The project affects the following key issue(s): the proposed crossings include 9.42 acres of wetland and open water that would be cleared and filled and 88,462 linear feet of stream that would be relocated, culverted, and/or lined with riprap. The magnitude of the proposed effect is approximately 0.04% of total wetland/water area within the watersheds. Avoidance and minimization methods include – refining the highway alignments and crossings during the Tiered NEPA evaluation to avoid wetlands, streams, and forests; and modifying the crossing designs to limit use of fill material, minimizing the impacts to "waters of the U.S." These avoidance and minimization measures would result in fewer overall impacts to the "waters of the U.S." – other alignments/designs would have impacted between 1.2 and 23 more acres of wetland and between 4,370 and 10,664 more linear feet of streams. Compensatory mitigation, namely the proposed "I-69 Section 4 Water Resource Mitigation and Monitoring Plan," dated September 22, 2011 and updated March 5, 2012, and monitoring described therein would result in the creation or restoration of 85,500 linear feet of stream with forested riparian corridor, 18.4 acres of emergent, 8.43 acres of scrub-shrub, and 71.96 acres of forested wetlands. In addition, the plan describes on-site mitigation measures including using natural stream design to relocate 888 linear feet of Plummer Creek, 473 linear feet of Black Ankle Creek, 408 linear feet of an unnamed tributary to Mitchell Branch, and 1,398 linear feet of an unnamed tributary to Clear Creek; and installing step pools for grade control and placing natural substrate into a total of 8,166 linear feet of 2 intermittent streams and 11 ephemeral streams that would be roadside ditches.

The USEPA commented that the on-site mitigation for ephemeral and intermittent streams was unlikely to replace the functions and values of the impacted streams and that this proposed mitigation was inappropriate. The USEPA also commented that the ratio of 1 acre of forested wetland creation/restoration for 1,000 linear feet of stream impact was inappropriate. The USEPA considered the compensatory mitigation plan inadequate to compensate for the impacts associated with the project. In response to USEPA's comments, INDOT added detailed design plans to the mitigation and monitoring plans for the on-site mitigation at Plummer Creek, Black Ankle Creek, an unnamed tributary of Mitchell Branch, and an unnamed tributary of Clear Creek to the "I-69 Section 4 Water Resource Compensatory Mitigation and Monitoring Plan." The step-pools and natural substrate replacements were designed in response to a specific request from IDEM that these tributaries be perpetuated within the right-of-way and that they have a natural substrate and are not just the normal grass lined roadside drainage channels. INDOT also

responded that State and/or Federal Laws do not provide any specific ratio to be used for out-of-kind mitigation and according to the 2008 Mitigation Rule it is left to the discretion of the USACE project manager to determine if the ratios are appropriate for the impacts. The proposed mitigation ratios have been coordinated with the USACE and the other regulatory agencies throughout the NEPA process for the Section 4 project. Out-of-kind stream mitigation using wetland habitat creation of emergent, scrub/shrub, forested, or vernal pools is being proposed within three mitigation sites. The wetlands being proposed at these mitigation sites would provide increased habitat functions, especially for macro-invertebrates, amphibians, and reptiles, thus providing mitigation on a watershed approach. INDOT's reply was sent to the USEPA on April 24, 2012. On June 21, 2012, USEPA was asked via an electronic mail message whether the reply satisfied their concerns. USEPA did not reply to that message. The Corps had further in-person contact with the USEPA during a field inspection on July 25, 2012, at which time the USEPA would not state whether or not INDOT's response to their comments satisfied their concerns. The Corps believes that the March 5, 2012 revised mitigation plan and response letter adequately addressed USEPA's concerns, but we have not been able to obtain confirmation of that from USEPA.

f. Corps Wetland Policy. Based on the public interest review herein, the beneficial effects of the project outweigh the detrimental impacts of the project.

g. (☐NA) Water Quality Certification under Section 401 of the Clean Water Act ☒ has/☐has not yet been issued by the ☐ /☒State/☐Commonwealth.

h. (☒NA) Coastal Zone Management (CZM) consistency/permit: Issuance of a State permit certifies that the project is consistent with the CZM plan. ☐ There is no evidence or indication from the that the project is inconsistent with their CZM plan.

i. Other authorizations.

j. (☒NA) Significant Issues of Overriding National Importance. *Explain.*

8. Compensation and other mitigation actions.

a. Compensatory Mitigation
(1) Is compensatory mitigation required? ☒ yes ☐ no [If "no," do not complete the rest of this section]

(2) Is the impact in the service area of an approved mitigation bank? ☐ yes ☒ no

(i) Does the mitigation bank have appropriate number and resource type of credits available? ☐ yes ☐ no

(3) Is the impact in the service area of an approved in-lieu fee program?
☐ yes ☒ no

(i) Does the in-lieu fee program have appropriate number and resource type of credits available? ☐ yes ☐ no

(4) Check the selected compensatory mitigation option(s):
☐ mitigation bank credits
☐ in-lieu fee program credits
☒ permittee-responsible mitigation under a watershed approach
☒ permittee-responsible mitigation, on-site and in-kind
☒ permittee-responsible mitigation, off-site and out-of-kind

(5) If a selected compensatory mitigation option deviates from the order of the options presented in §332.3(b)(2)-(6), explain why the selected compensatory mitigation option is environmentally preferable. Address the criteria provided in §332.3(a)(1) (i.e., the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of the compensatory mitigation project):

The following paragraphs provide an explanation of how the mitigation sites address the criteria provided in §332.3(a)(1).

Veale Creek Mitigation Site
The Veale Creek mitigation site is a 143-acre site located south of the Section 4 project in the Lower White watershed. The majority of this site has been disturbed through land clearing and agricultural practices. Land use adjacent to the mitigation site includes agricultural fields, woodlots, three residential homes, and transportation corridors. Veale Creek runs through the middle of this property and it is located within the Veale Creek bat maternity colony. USFWS identified this site as a priority mitigation site because of the amount of development in this area and the amount of habitat that has been lost by the development. The lower floodplain fields within this mitigation site have been altered through tiling to drain the area for agricultural production. The mitigation plan for this site includes 1,643 linear feet of perennial stream enhancement; 1,439 linear feet of intermittent stream restoration; 7.36 acres of palustrine forested wetland establishment; 1.63 acres of palustrine scrub/shrub wetland establishment; and 4.20 acres of palustrine emergent wetland establishment. Out of the total acres of established wetland, 0.4 acre of emergent, 1.06 acres of scrub/shrub, and 6.11 acres of forested are in excess of the required acreage for Section 4 mitigation and would be used for contingency. If during the 10-year post-construction monitoring of the proposed Section 4 mitigation sites it is determined that any portion of the wetland mitigation areas proposed for the permit are not meeting the performance standards and/or the success criteria, the applicant proposes to use the contingency wetland areas at this site to replace these wetland areas.

Replacement would be proposed if the wetland areas identified as contingency are of equal type and meeting the required performance standards and success criteria. The applicant would be required to identify the specific failing mitigation areas and identify the specific contingency wetlands at this site that would replace the failing wetlands. INDOT would also be required to provide information to the agencies that the replacement contingency wetlands are of equal type and meeting the success criteria and performance standards and that there are enough contingency wetlands to replace the failing wetlands. Hydrology for this mitigation site would be provided primarily via Veale Creek, which flows through this site in a northeast to southwest direction. Communication with the land owners indicate that the southern and eastern portions in the lower elevations of the mitigation site are (bottomland area) frequently inundated by floodwaters from Veale Creek. The lower elevations of this site also contain field tile to drain the water off of the site to provide agricultural production. In addition, the presence of existing wetland habitat within the northeastern portion of the property, at approximately the same elevations as the proposed wetland mitigation areas, indicates that wetland development areas of the mitigation site would have sufficient hydrology to support a wetland community. Under typical flood conditions associated with multiple annual rain events, floodwaters would inundate the lower elevations of this mitigation site. As the floodwater recedes, water would be retained in local depressions within the site and within the existing wetland habitat areas. The mitigation wetlands would perform the same functions as the existing wetlands on the site - flood storage, retention of sediment particles transported by Veale Creek, water purification, food and cover for wildlife, and groundwater recharge. The functions would be expanded in size and enhanced in quality for wildlife habitat through diversified woody and herbaceous species plantings.

West Fork Mitigation Site

The West Fork mitigation site is a 168.2-acre site located on the south end of the Section 4 project area in the Lower White watershed. The current land use for the mitigation site is predominantly agricultural (142.6 acres) with some bottomland/riparian/wetland forest areas (25.6 acres) . The drainage on the property has been altered to allow for agricultural row crop production and the site has been in agricultural production for at least the past 20 years. Surrounding land use consists of agricultural land and forest areas. The property is adjacent to the West Fork of the White River. The mitigation plan for this site includes 7,960 linear feet of perennial stream enhancement; 450 linear feet of ephemeral stream enhancement; 20 acres of palustrine forested wetland establishment to provide out-of-kind mitigation for 20,000 linear feet of stream impacts at a ratio of 1,000 feet per 1 acre of impact; and 24.8 acres of palustrine forested wetland establishment to provide in-kind mitigation for forested wetland impacts. In addition, 11.8 acres of scrub/shrub and 4.3 acres of emergent wetland would be established at this mitigation site. Hydrology for this site would be provided primarily via floodwaters from the West Fork of the White River and localized runoff from precipitation. The soils within the proposed wetland creation areas include Hamond silt loam and Neward silt

loam. Although neither of these two soils is identified at hydric soil the same mapped soil units are identified in the existing mapped wetlands to the north, south, and west of this site. Hamond silt loam soil is defined as having a high available water capacity, moderately permeable, and has slow runoff. Neward silt loam soil is defined as having a high available water capacity, moderately permeable, with the water table 0.5 feet to 1.5 feet below the surface in the winter and spring. Because existing wetlands are located within these soils, it is anticipated that these soils will support wetlands. By eliminating the existing drainage from former farming activities and enhancing the hydrology in these areas, the soils are anticipated to meet the hydric soil criteria of wetlands once the mitigation site is constructed. The functions provided by the mitigation wetlands would be the same as those provided by existing wetlands on the site - flood storage, water purification, food and cover for wildlife, bank stabilization, and groundwater recharge. The functions would be expanded in size and enhanced in quality for wildlife habitat through diversified woody and herbaceous species plantings. The 2.3 acres of emergent and 6.8 acres of scrub/shrub wetland establishment and 2.2 acres of the total of 35.7 acres of forested wetland establishment would be used as contingency since it is in excess of the acreage required for mitigation based on the ratios described earlier. If during the 10-year post-construction monitoring of the proposed mitigation sites it is determined that a portion of the identified wetland mitigation areas are not meeting the performance standards and/or the success criteria, the contingency wetland areas at this site may be used to replace these wetland areas as long as the wetland areas identified as contingency at this site are of the same wetland type and meeting the required performance standards and success criteria. If the contingency wetlands are proposed for replacing failing wetland mitigation, INDOT would be required to identify the failing areas and designate areas of the contingency wetlands at this site that are proposed for replacing the failing wetlands. INDOT would also be required to provide information to the agencies that the replacement contingency wetlands are meeting the success criteria and performance standards and there are enough contingency wetlands of equal type to replace the functions of the failing wetlands.

Doans Creek Mitigation Site

The Doans Creek mitigation site is a 207.6-acre site located on the south end of the Section 4 project area and is in the Lower White watershed. Doans Creek runs along the northern portion of this site. The site is contiguous with the Forestry Education Foundation which is an approximately 300-acre block of contiguous forest. The current land use for the mitigation site is predominantly forested and agricultural with some wetland and surface water areas present. Surrounding land use consists of agricultural land, forest, and residential areas. The mitigation site is located on multiple noncontiguous parcels within a 3 square mile area. Mitigation provided at this site would include the establishment of approximately 14.5 acres of forested wetland, 595 linear feet of perennial stream channel enhancement, and 600 linear feet of ephemeral stream enhancement. The mitigation wetland would perform the same functions as existing wetlands on the site - flood storage, water purification, food and cover

for wildlife, and groundwater recharge. The mitigation wetland would expand the size of area providing these functions on the site and enhance the quality for wildlife habitat through diversified woody and herbaceous species plantings. The 14.5 acres of forested wetland creation at this mitigation site is in excess of the required forested wetland mitigation and is being proposed for contingency mitigation. If during the 10-year post-construction monitoring of the proposed Section 4 mitigation sites it is determined that a portion of the identified forested wetland mitigation areas proposed for the permit are not meeting the performance standards and/or the success criteria, the contingency forested wetland areas in this plan may be used to replace these forested wetland areas as long as the forested wetland areas identified as contingency are meeting the required performance standards and success criteria of the failing wetlands. INDOT would be required to identify the areas that are failing and the contingency forested wetlands at this site that are proposed for replacing the forested wetlands that are failing. INDOT would also be required to provide information to the agencies showing that the replacement contingency wetlands are meeting the success criteria and performance standards and there are enough contingency forested wetlands to replace the failing wetlands. Hydrology for the Doans Creek Mitigation Site would be provided primarily via localized runoff from precipitation. The existence of forested wetland habitat areas located along the perimeter of the property and along Doans Creek, at approximately the same elevations as the proposed wetland mitigation site, indicates that the site would have sufficient hydrology to support a wetland community. In addition, water retention berms would be constructed on the site to help ensure that adequate hydrology is achieved within the wetland creation areas.

Taylor Ridge Mitigation Site

The Taylor Ridge mitigation site is an approximately 249.3-acre site located in the southern half of the Section 4 project area and is in the Lower White watershed. This property is a former livestock operation. The current land use is predominantly forested and agricultural with some wetland and surface water areas present. The buildings associated with the hog farm have been removed. The mitigation plan would require removal of remaining foundations as well as dewatering the waste lagoon in compliance with IDEM's required procedures. Surrounding land use consists of agricultural land, forest, and residential areas. Proposed mitigation at this site includes 9.3 acres of emergent wetland creation, 1,315 linear feet of ephemeral stream restoration, and 445 linear feet of ephemeral stream enhancement. The mitigation wetland would perform the same functions as existing wetlands on the site - flood storage, water purification, food and cover for wildlife, and groundwater recharge. The mitigation wetland would expand the size of area providing these functions on the site and enhance the quality for wildlife habitat through diversified woody and herbaceous species plantings. The mitigation at this site would create 5.1 acres of emergent wetlands in excess of the required mitigation for Section 4. This excess acreage would be for contingency emergent wetland mitigation. If during the 10-year post-construction monitoring of the proposed Section 4

mitigation sites it is determined that a portion of the identified emergent wetland mitigation areas proposed for the permit are not meeting the performance standards and/or the success criteria, the contingency emergent wetland areas in this plan may be used to replace these emergent wetland areas as long as the emergent wetland areas identified as contingency are meeting the required performance standards and success criteria of the wetlands identified as failing. If the contingency emergent wetlands identified at this mitigation site are proposed for replacing emergent wetland mitigation required for the Section 4 permits, INDOT would be required to identify the areas that are failing and identify the contingency emergent wetlands at this site that are proposed for replacing the failing emergent wetlands. INDOT would also be required to provide information to the agencies that the replacement contingency wetlands are meeting the success criteria and performance standards and there are enough contingency emergent wetlands to replace the failing wetlands. Hydrology for this site would be provided primarily via localized runoff from precipitation.

Black Ankle Mitigation Site
The Black Ankle mitigation site is a 241.8-acre site located in the southern half of the Section 4 project area and is in the Lower White watershed. The property currently consists of grazing and forested land. Surrounding land use consists of agricultural pastureland, forest, wetlands, and residential areas. This property is located west of the Martin State Forest and is also located adjacent to a number of other Section 4 mitigation sites which would provide for a large block of forest mitigation. The mitigation constructed at this site includes 3,150 linear feet of perennial stream enhancement and 6,730 linear feet of ephemeral stream enhancement. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, retention of sediment particles transported by Black Ankle Creek, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions through native riparian plantings, removal of the property from use as a cattle pasture. Wildlife habitat quality would be enhanced through diversified woody and herbaceous species plantings. Hydrology for the Black Ankle Mitigation Site would be provided primarily via runoff from the surrounding landscape, and then into Black Ankle Creek, which flows through this mitigation site in a south to north direction along with natural springs in the area.

Plummer Creek 1 Mitigation Site
The Plummer Creek 1 mitigation site is a 184.5-acre site located in the southern half of the Section 4 project area and is in the Lower White watershed. The current land use for this site is predominantly forested and agricultural with some wetland and surface water areas present. Surrounding land use consists of agricultural land, forest, and residential areas. The mitigation site is located on 4 non-contiguous parcels within a 0.7 square mile area. This property is located adjacent to the Martin State Forest and is also located adjacent to a number of other Section 4 mitigation sites which would provide a large block of forest

mitigation. This property includes an Indiana bat roost tree that was identified in 2004. In addition, Plummer Creek flows through this property. The mitigation plan for this site includes the enhancement of 3,700 linear feet of perennial stream and 515 linear feet of ephemeral stream. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. The mitigation site has been designed so that additional bottomland forest and riparian habitat areas would be created in the area of existing forested and emergent wetlands, enhancing the overall habitat and storm water retention capabilities. Hydrology for the site would be provided primarily via localized runoff from precipitation.

Koleen Mitigation Site
The Koleen mitigation site is an approximately 60.4-acre site located in the southern half of the Section 4 project area in the Lower White watershed. The current land use for the mitigation site is forested and agricultural hay and crop production land. Surrounding land use consists of pastures, forest, wetlands, and residential areas. This property is located east of the Martin State Forest and is also located adjacent to a number of other Section 4 mitigation sites which provides for a large amount of block forest mitigation. Ashcraft Cave is located very close to this property and the development of this mitigation site would increase the bat foraging habitat near this cave. Mitigation provided at this site would include 2,075 linear feet of intermittent stream enhancement and 3,375 linear feet of ephemeral stream enhancement. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, retention of sediment particles transported by unnamed tributaries of Plummer Creek, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Hydrology for the stream channel enhancement areas at this site would be provided primarily via runoff from the surrounding landscape into these unnamed tributaries of Plummer Creek, which flow through this mitigation site in a north to south direction. This site would also receive floodwaters from Plummer Creek on occasion. Under typical flood conditions associated with multiple annual rain events, floodwaters would inundate the lower elevations of this mitigation site.

Plummer Creek 2 Mitigation Site
The Plummer Creek 2 mitigation site is a 206.8-acre site located in the southern half of the Section 4 project area in the Lower White watershed. Current land use on this site includes agricultural fields utilized for row crop production, bottomland early successional forests, wetlands, and existing bottomland and upland. A small cabin, access roads, and a small pond are also located on the site – these areas (total of 9.9 acres) would remain to be used and maintained by the property owners after construction of mitigation. Surrounding land use consists of forests, agricultural land, and residential properties. The site is west of the Martin State Forest and is adjacent to a number of other Section 4

mitigation sites which would provide a large block of forest mitigation. Plummer Creek runs through this mitigation site and a large portion of Plummer Creek within this mitigation site has been channelized for agricultural production and the stream banks are severely eroded in some areas. Proposed mitigation at this site would include 4,720 linear feet of perennial stream restoration, 1,775 linear feet of perennial stream enhancement, 900 linear feet of ephemeral stream enhancement, 4.0 acres of palustrine forested wetland creation, and 2.6 acres of palustrine emergent wetland creation. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, retention of sediment particles transported by unnamed tributaries of Plummer Creek, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Additionally, sediment loading in Plummer Creek and the West Fork White River watersheds would be reduced through restoration of Plummer Creek and elimination of extensive bank erosion. Hydrology within the lower elevations of this site would be provided primarily via floodwaters of Plummer Creek, and also via localized surface runoff and karst spring flow. The remainder of the site would receive localized surface water runoff.

Beech Creek Mitigation Site
The Beech Creek mitigation site is a 69-acre site located in the northern half of the Section 4 project area in the Lower White watershed. The current land use for this site is forested and agricultural land previously used for row crop production. Beech Creek runs through this property and there is a natural spring located north of the site across the county road that provides hydrology to this site. This property also contains a channelized intermittent stream channel flowing along the western boundary from south to north that is currently functioning as a roadside ditch. Surrounding land use consists of agricultural land, forest, and residential areas. Mitigation provided at this site would include 3,380 linear feet of perennial stream enhancement (including 0.21 acre of bank stabilization), 785 linear feet of intermittent stream restoration, 1,590 linear feet of ephemeral stream restoration, and 1,190 linear feet of ephemeral stream enhancement. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, retention of sediment particles transported by Beech Creek, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Hydrology for the stream channel enhancement areas at this site would be provided primarily via runoff from the surrounding landscape into these unnamed tributaries of Beech Creek. This site would also receive floodwaters from Beech Creek on occasion. Under typical flood conditions associated with multiple annual rain events, floodwaters would inundate the lower elevations of this mitigation site.

Indian Creek 2 Mitigation Site
The Indian Creek 2 mitigation site is approximately 34.2 acres in size and is located in the northern half of the Section 4 project area in the Lower East Fork White watershed. The current land use for the site is forested habitat and

agricultural property used for row crop production. Surrounding land use consists of agricultural land, forest, and residential areas. Indian Creek flows through the property and has a diverse assemblage of fish. The site includes reaches of Indian Creek with severe bank erosion. This site is located adjacent to a number of other Section 4 mitigation sites which would provide a large block of forest mitigation. The mitigation provided at this site would be 1,180 linear feet of perennial stream restoration or enhancement including 1.13 acres of riparian reforestation and approximately 0.37 acre of bank stabilization on 880 linear feet of Indian Creek. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, retention of sediment particles transported by Indian Creek, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Hydrology for the Indian Creek 2 Mitigation Site would be provided primarily via Indian Creek, which flows through this mitigation site in a north to south direction. Under peak flood conditions, floodwaters would inundate the lower elevations of this mitigation site.

Indian Creek 3 Mitigation Site

The Indian Creek 3 mitigation site is a 158-acre site located in the northern half of the Section 4 project area in the Lower East Fork White watershed. Indian Creek runs directly through this mitigation site, which is currently a mosaic of upland forest and bottomland forest habitat with a small amount of open pasture land. The applicant is proposing to create 2.8 acres of forested wetlands within the generally flat fallow bottomland fields near Indian Creek. The current land uses for this site are forested and pasture land. Surrounding land use consists of agricultural land (hay fields and cattle pastures), forest, and residential areas. Section 4 of Interstate 69 would transect this mitigation site. Hydrology for the Indian Creek 3 Mitigation Site would be provided primarily via localized runoff from precipitation. The creation of forested wetland mitigation on this site is anticipated to be used for out-of-kind mitigation for impacts to ephemeral stream channel habitat at a ratio of 1 acre of created forested wetland to 1,000 linear feet of impacted ephemeral/intermittent streams. Out-of-kind stream mitigation using forested wetland creation is being proposed because there are limited opportunities in the East Fork of the White River and Lower White River watersheds to provide in-kind mitigation for the ephemeral and smaller intermittent streams being impacted by the Section 4 project. The vast majority of similar ephemeral and intermittent stream channels in these watersheds are currently in a natural condition with forested corridors located on both sides of the existing channels resulting in very few opportunities to provide mitigation beyond preservation. In addition, the applicant is required to find "willing sellers" for mitigation and was not successful in finding appropriate mitigation sites with landowners who would be willing to sell. Therefore, the applicant is proposing out-of-kind mitigation to replace the habitat functional losses of ephemeral and intermittent streams caused by the roadway project. The hydrological functions of the channels proposed for out-of-kind mitigation would not be permanently impacted by the project as the flow from these channels would be maintained through the project. The habitat functions that

would be impacted by the proposed roadway project for the ephemeral and smaller intermittent stream channel impacts includes mainly amphibian and reptile habitat as these are dry stream channels the majority of the time. The forested wetlands being proposed at this mitigation site would provide increased habitat functions especially for amphibian and reptiles which would provide mitigation from a watershed approach versus in-kind mitigation.

Indian Creek 1 Mitigation Site
The Indian Creek 1 mitigation site is a 139-acre site located in the northern half of the Section 4 project area and is in the Lower East Fork White watershed. This property is located directly adjacent to Indian Creek and the current land use includes primarily agricultural fields utilized for row crop production and for pasture land and some areas of existing forest, wetlands, and riparian habitats in addition to a small amount of residential area. Surrounding land use consists of forests, agricultural land, and residential properties. The reach of Indian Creek that runs along the west boundary of this mitigation site has a few areas that show stream bank erosion problems resulting from agricultural practice. A total of 3.63 acres of the property is within existing county road right-of-way or existing developed land. The remaining 135.58 acres would be used for mitigation. The 85.17 acres of the site that is currently row crop or pasture would be used for forested wetland restoration, stream channel restoration/enhancement, and reforestation. The mitigation plan for this mitigation site includes 7.6 acres of palustrine forested wetland creation to be used for stream habitat replacement out-of-kind mitigation at a 1 acre of wetland creation to 1,000 linear feet of stream mitigation ratio; 5,275 linear feet of perennial stream enhancement; 4,881 linear feet of ephemeral stream restoration; 3,658 linear feet of ephemeral stream enhancement. The proposed functions for the mitigation site would be essentially the same as the existing wetlands on-site (flood storage, retention of sediment particles transported by Indian Creek, water purification, food and cover for wildlife, and groundwater recharge), but would be expanded in size and enhanced in quality for wildlife habitat through diversified woody and herbaceous species plantings. Hydrology for the wetlands would be provided primarily via floodwaters of Indian Creek and surface water runoff from adjacent land areas. Additionally, this mitigation would serve to maintain and enhance Indian Creek, which supports a diverse assemblage of fish and other wildlife species.

Mitchell Branch Mitigation Site
The Mitchell Branch mitigation site is approximately 37.1 acres in sized and is located in the southern half of the Section 4 project area in the Lower East Fork White watershed. The current land use for this site is predominantly mature forest with scattered areas of open fields used for pasture. Surrounding land use consists of agricultural land and forest areas. Residential properties are not immediately adjacent to the mitigation area. Mitchell Branch and an unnamed tributary of Mitchell Branch flow through this property. Both of these are perennial streams. Mitigation provided at this site would include 1,785 linear feet of perennial stream enhancement and 1,465 linear feet of intermittent

stream enhancement by riparian habitat reforestation and cattle exclusion. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Hydrology for the Mitchell Branch Mitigation Site is provided primarily via localized runoff from precipitation and flooding from Mitchell Branch and an unnamed tributary of Mitchell Branch.

SR 45 Mitigation Site
The SR 45 mitigation site is approximately 179 acres in size and is located along SR 45 both north and south of the proposed SR 45 and Interstate 69 interchange in the Lower East Fork White watershed. This area has road frontage along SR 45 and the construction of Section 4 and the interchange would make this parcel prime developable land. The site contains mature forest with approximately 12,750 linear feet of ephemeral stream channels providing functions such as flood storage, water purification, food and cover for wildlife, and groundwater recharge. Mitigation on this property would include the preservation of approximately 12,750 linear feet of ephemeral streams along with their riparian habitat corridors. INDOT has purchased this site and is now the fee simple owner of the property. INDOT would record a deed restriction on this property protecting the property from any future disturbances from development in perpetuity.

Indian Creek 4 Mitigation Site
The Indian Creek 4 mitigation site is a 133.3-acre site located in the northern half of the Section 4 project area in the Lower East Fork White watershed. The current land use for this site includes forested areas, wetlands, an abandoned quarry, cattle pastures, hay fields, and residential/agricultural buildings and lawns. A cave, known as Quimby Quarry Cave, is located within the abandoned quarry. Surrounding land use consists of agricultural land, forest, and residential areas. Indian Creek runs along the western boundary of this mitigation site. Mitigation provided at the site would include 3,120 linear feet of perennial stream enhancement, 2,230 linear feet of ephemeral stream restoration, and 1,795 linear feet of ephemeral stream enhancement. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, retention of sediment particles transported by Indian Creek, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Additionally, this mitigation would serve to maintain and enhance Indian Creek, which supports a diverse assemblage of fish and other wildlife species. Hydrology at this site would be provided primarily via localized surface water runoff. Areas along Indian Creek would also receive periodic floodwaters.

Indian Creek 5/Clear Creek Mitigation Site
The Indian Creek 5 mitigation site is a 176.3-acre site located in the northern

half of the Section 4 project area in the Lower East Fork White watershed. Current land use for this site is predominantly forested with fallow pasture field areas for cattle grazing and agricultural land near a large tributary to Clear Creek. The mitigation site is two separate parcels located approximately 0.9 miles apart. The larger parcel of land is located between Tramway Road and Bolin Lane and is transected by the Section 4 right-of-way. The smaller parcel is located to the south on West Fluck Mill Road near the Ketcham Road intersection. A power line easement runs along the western edge of the large parcel. The entire mitigation site is grazed by cattle including the stream channels and existing forested areas. Surrounding land use consists of agricultural land, forest, and residential areas. Mitigation provided at this site would include 3,570 linear feet of perennial stream enhancement, 1,211 linear feet of intermittent stream enhancement, and 1,313 linear feet of ephemeral stream enhancement. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Hydrology at this site would be provided primarily via localized surface water runoff.

Eller Mitigation Site
The Eller mitigation site is an 88.4-acre site located in the northern half of the Section 4 project area and in the Lower East Fork White watershed. The current land use for this site is mature forest and agricultural pasture land . The entrance to Eller Cave is located on this property and was blocked off in 1976 with large rocks to prevent human access. The entrance to this cave may be reopened as part of this mitigation. In addition, there are a number of ephemeral channels and one intermittent channel located within this mitigation site. The entire mitigation site is grazed by cattle including the stream channels and existing forested areas. Surrounding land use consists of agricultural pastureland, forest, and residential areas. Mitigation provided at this site would include 1,600 linear feet of intermittent stream enhancement and 3,995 linear feet of ephemeral stream enhancement. The functions provided by the mitigation would be the same as the functions existing on the site – flood storage, water purification, food and cover for wildlife, and groundwater recharge. The mitigation would expand and enhance the existing functions. Hydrology for the stream mitigation at this site would be provided primarily via localized surface water runoff, which flows through this mitigation site in a north to south direction. The two ephemeral streams on the north side of the site flow south into Eller Cave and then resurface into the intermittent stream to the west on the property. This mitigation plan would serve to enhance, preserve, and protect a significant portion of the Eller Cave watershed.

Given the research, planning, and design associated with the above sites and their likelihood of success and sustainability, these sites meet the fundamental objective of offsetting the losses from unavoidable impacts to "waters of the U.S."

(6) Other Mitigative Actions:
Indiana Bat Hibernacula:
Indiana bat hibernacula are present within the Section 4 Winter Action Area (WAA). Per the Tier 1 Revised Biological Opinion (BO), opportunities would be investigated to purchase, at fair market value, from "willing sellers," an Indiana bat hibernaculum(a) including associated autumn swarming/spring staging habitat. After purchase and implementation of all management efforts, hibernaculum(a) and all buffered areas would be turned over to an appropriate government conservation and management agency for protection in perpetuity via conservation easements. At present, INDOT and FHWA have purchased a Conservation Easement for two Priority 1A hibernacula. In 2009, these two hibernacula showed approximately 37,000 wintering Indiana bats. INDOT and FHWA have also purchased mitigation property including one Priority 3 hibernaculum that in 2009 showed over 800 wintering Indiana bats, as well as over 350 acres of autumn swarming/spring staging habitat.

Forest Impacts:
For the proposed Interstate 69 Evansville to Indianapolis extension project as a whole, INDOT and FHWA committed to mitigate impacts to upland forests at a 3 to 1 ratio. Mitigation goals are to replace direct forest impacts at a 1 to 1 ratio and provide an additional 2 to1 ratio of forest preservation. The 3 to 1 ratio would be achieved for the overall Interstate 69 Evansville to Indianapolis extension; the ratio for an individual Tier 2 section could be higher or lower than 3 to 1. Based on the 3 to 1 ratio and the estimated 970 acres of direct impact to upland forests with Section 4's Refined Preferred Alternative 2, a total of 2,900 acres would be needed for mitigation – 970 acres of new plantings to replace acres directly impacted and 1,930 acres of existing forest to be preserved. In the case of any forests in a floodway, a 2 to 1 replacement or 10 to 1 preservation ratio would apply, as applicable by the IDNR Construction in a Floodway permit. If needed, the necessary permit would be secured before or during the design phase of the project. In Section 4, the proposed forest mitigation sites are the same as those described above for wetland mitigation. Forest mitigation would be accomplished either by purchasing and protecting existing tracts of forests or by planting trees. Preference would be given to areas contiguous to large forested tracts that have recorded federal- and state-listed threatened and endangered species. Coordination with resource agencies would assure that these forest mitigation sites are strategically situated in biologically attractive ecosystems. All forest mitigation lands would be protected in perpetuity via conservation easements or other appropriate measures. The species to be planted and the long-term management of these mitigation sites would be coordinated with the agencies relative to the conditions of the necessary permits and authorizations.

Construction:
1. Construction Plans – Environmentally-sensitive locations (e.g., wetlands, historic structures, archaeology sites, sinkholes) in the general area would be clearly shown on construction plans. Sites within the right-of-way would be

delineated. These sites would not be permitted for use as staging areas, borrow, or waste sites.

2. Erosion Control – Erosion control devices would be used to minimize sediment and debris from leaving the project site in runoff. Timely revegetation after soil disturbance would be implemented and monitored. Revegetation would consider site specific needs for water. Erosion control measures would be put in place as a first step in construction and maintained throughout construction. Any riprap used below the high water mark would be of a large diameter in order to allow space for habitat for aquatic species after placement. Slopes would be designed that resist erosion. If slopes exceed 2 to 1, they would include stabilization techniques. Soil bioengineering techniques for bank stabilization would be considered where situations allow.

3. Groundwater and Karst – Best Management Practices (BMP) would be implemented during construction to protect groundwater. Where groundwater from private, individual wells is the principal source of potable water, grassy swales or equivalent methods to divert stormwater from the road to ditches and streams, and construction methods to reduce turbidity that construction temporarily causes would be among the measures employed to protect sources of potable water. Stormwater runoff protection measures would be installed at all karst features in the right-of-way at the initiation of construction and maintained until all stormwater drainage has been diverted away from the feature, or final permanent stormwater treatment measures are in place. Procedures to reduce the impacts to karst would be implemented in accordance with INDOT's *Standard Specifications* and the 1993 Karst MOU between INDOT, IDNR, IDEM and USFWS and the Interstate 69 Section 4 Karst Agreement signed by INDOT, IDEM, IDNR, and the USFWS in 2012. Per USEPA written comments on the DEIS, a firm commitment was added that if active groundwater flow paths are discovered, measures would be taken to perpetuate the flow and protect water quality. USEPA Class V injection well permits may be required for various types of projects. For example such a permit could be required by EPA Region 5 if a Class V injection well located within the karst region of the state, a state designated source water protection area for a public water supply, or anywhere untreated fluids discharged through a Class V well may otherwise endanger an underground source of drinking water. If there are measures in place to prevent contamination of groundwater, a Class V well could be authorized by rule rather than by a permit. A Class V Well Inventory Form would need to be provided to EPA Region 5 prior to construction of a Class V injection well so that EPA could determine if a Class V injection well permit will be required for any Class V wells. For the Interstate 69 project, if the inventory information provided indicates that any injection well would likely contaminate any underground source of drinking water, a permit would be required. Any permit would need to be applied for and obtained prior to construction of the Class V well.

4. Air Quality – Construction equipment would be maintained in proper mechanical condition. Fugitive dust generated during land clearing and demolition procedures would be controlled by proper techniques. All bituminous and Portland cement concrete proportioning plants and crushers

would meet the requirements of IDEM. Dust collectors would also be provided on all bituminous plants. Dry, fine aggregate material removed from the dryer exhaust by the dust collector would be returned to the dryer discharge unless otherwise directed by the project engineer.

5. Parking and Turning Areas – Prior to construction, planning for parking and turning areas outside the construction limits but within the right-of-way for heavy equipment would be located to minimize soil erosion and impacts to identified resources.

6. Tree Clearing – The potential construction impacts to the Indiana bat's summer and winter habitat would be addressed in accordance with the requirements of the USFWS's revised Tier 1 BO for the Interstate 69 Evansville to Indianapolis project, which was issued on August 24, 2006 and Amendment to the revised Tier 1 BO issued May 25, 2011 and any subsequent formal consultation conditions specific to Section 4. These measures would include the following: Tree and snag removal would be avoided or minimized. No trees with a diameter of three or more inches would be removed between April 1 and November 15 within the Winter Action Area (WAA) and April 1 and September 30 within the Summer Action Area (SAA) to avoid any direct take of Indiana bats. Tree clearing would be allowed in the WAA from November 16 to March 31, and tree clearing would be allowed from October 1 through March 31 in the SAA. Tree clearing and snag removal would be kept to a minimum and limited to within the construction limits. Tree clearing would be kept to a minimum outside of the clear zone with woods kept in as much of a natural state as reasonable in bifurcated sections with widened medians. Forested medians would be managed following the IDNR State Forest timber management plan.

7. Emerald Ash Borer – INDOT would consult IDNR to determine appropriate measures during tree clearing to address concerns about the emerald ash borer.

8. Eastern Box Turtle – INDOT and FHWA would continue to coordinate with IDNR with regard to potential impacts upon eastern box turtles.

9. Revegetation – Revegetation of disturbed areas would occur in accordance with INDOT standard specifications. Woody vegetation will only be used a reasonable distance beyond the clear zone to ensure a safe facility. Revegetation of disturbed soils in the right-of-way and medians would utilize native grasses and native wildflowers as appropriate, such as those cultivated through INDOT's Roadside Heritage program.

10. Spill Prevention/Containment – Contractors would be required to provide an acceptable spill response plan. This response plan would include telephone numbers for emergency response personnel and copies of agreements with any agencies which are part of the spill-response effort. An emergency contact telephone number also is required. The Rule 5 permit that contractors would obtain would l require that all have spill containment plans in their contract documents.

11. Heavy Blasting – Heavy blasting is anticipated, and strict blasting specifications would be followed. Blasting will be avoided between September 15 and April 15 in areas within 0.5 miles of known Indiana bat hibernacula. All blasting in the Winter Action Area (WAA) will follow the specifications developed in consultation with the USFWS and would be conducted in a

manner in attempt to avoid compromising the structural integrity or alter the karst hydrology of nearby caves serving as Indiana bat hibernacula. Blasting within areas where dimension limestone is being quarried would be completed following specifications developed in consultation with limestone industry representatives as well as the Indiana Geological Survey and other geology experts.

12. Maintenance of Traffic – Coordination with local agencies, emergency responders and schools would be conducted to ensure that appropriate access is maintained during construction with as little disturbance to emergency routes as possible. Early notice of detour routes would be provided to the local communities.

13. Construction Noise – Construction noise abatement measures may be required in areas where residences or other sensitive noise receivers are subjected to excessive noise from highway operations. Consideration would be given to providing reasonable and feasible noise abatement early in the construction phase to mitigate construction noise. Noise impacts would be controlled through the regulation of construction time and hours worked, using noise controlled construction equipment, limitations of construction vehicles during evening and weekend hours and by locating equipment storage areas away from noise sensitive areas.

14. Construction in a Floodway – Construction in a Floodway permit(s) would be applied for before or during the design phase of this project.

15. Surveys – The undersides of existing bridges that must be removed for construction of Interstate 69 would be visually surveyed and/or netted to determine their use as night roosts by Indiana bats during the summer. (Note: This work has been completed. Sixty-six bridges and culverts in the Section 4 corridor were inspected for bats. No Indiana bats were found at any of the bridge locations within the Section 4 corridor.)

16. Memoranda of Understandings (MOUs) – Construction would adhere to the Wetland MOU (dated January 28, 1991). The primary purpose of the Wetland MOU is to fulfill water resource permitting requirements. In so doing, the Wetland MOU serves to minimize impacts to the Indiana bat by mitigating for wetland losses and creating bat foraging areas at greater ratios than that lost to the project.

17. Equipment Maintenance – Construction equipment would be maintained in proper mechanical condition. All servicing of construction equipment will take place in a designated maintenance area away from environmentally-sensitive areas.

18. Borrow Sites/Waste Disposal – BMPs would be used in the construction of this project to minimize impacts related to borrow and waste disposal activities. Solid waste generated by clearing and grubbing, demolition or other construction practices would be removed from the location and properly disposed. All burning would be monitored. Contractors are required to follow safeguards established in INDOT's *Standard Specifications* (Section 203.08 Borrow or Disposal) that include obtaining required permits. Prior to their use, borrow sites would be assessed for impacts to resources such as archaeological resources, wetlands, etc., and appropriate measures taken to avoid or mitigate

impacts to these resources. Special Provisions would include prohibiting tree clearing from April 1 to November 15 within the Winter Action Area of the Indiana bats and from April 1 to September 30 in the Summer Action Area, as identified in the revised Tier 1 and Tier 2 BOs. Tree clearing would be allowed in the Winter Action Area from November 16 to March 31, and tree clearing would be allowed from October 1 through March 31 in the Summer Action Area. Special Provisions would also include prohibiting the filling or other damaging of wetlands within the right-of-way outside the construction limits. Note that this does not include isolated ponds such as farm ponds or those developed from old borrow sites since these are exempt from regulation because they are manmade bodies of water constructed from uplands.
19. Wetlands Within the Right-of-Way – Wetlands within the right-of-way that are not within the construction limits would be delineated and protected from construction impacts.
20. Training of Construction and Maintenance Personnel – All Interstate 69 engineering supervisors, equipment operators, and other construction personnel and INDOT and/or other maintenance staff would attend a mandatory environmental awareness training that discloses where known sensitive Indiana bat sites are located in the project area, addresses any other concerns regarding Indiana bats, and presents a protocol for reporting the presence of any live, injured, or dead bats observed or found within or near the construction limits or right-of-way during construction, operation, and maintenance of Interstate 69.

Hazardous Materials:
1. Hazardous Material Cleanup—Appropriate cleanup of hazardous materials and/or removal of underground storage tanks (USTs) and aboveground storage tanks (ASTs) would be required if a contaminated site is purchased. INDOT would coordinate with the appropriate agencies and property owners to see that proper cleanup of any contaminated sites are completed.
2. Relocating Pipelines Transporting Hazardous Material—Where construction would require the removal/relocation of buried fuel (oil, natural gas, and diesel) pipelines, coordination would occur with pipeline owners, per INDOT's *Standard Specifications*. Also, stipulations in the *Standard Specifications* would be followed to ensure safe removal/relocation of the pipelines and associated appurtenances, and appropriate remediation of soils and groundwater impacts, should such be necessary. In addition, the procedure would include advance notification of IDEM regarding the potential for contamination of groundwater and need for remediation.
3. Discovery of Improperly Abandoned Wells—INDOT would be responsible for proper closing of any improperly abandoned well discovered during construction within the project right-of-way, according to INDOT Standard Operating Procedures for closing wells that are to be abandoned. In addition, the procedure would include advance notification of IDEM regarding the potential for contamination of groundwater and need for remediation.

Floodplain impacts:
Longitudinal and transverse floodplain encroachments would be minimized,

where reasonable, through design practices such as longer bridges and perpendicular stream crossings. The crossings at Black Ankle Creek, Dry Branch, Plummer Creek and the unnamed tributary to Clear Creek (formerly May Creek) (all of which have FEMA-mapped floodplains) are transverse crossings. A hydraulic study during final design will determine the length of the span. Refined Preferred Alternative 2 would encroach longitudinally upon the Indian Creek floodplain approximately 3,200 feet south of Carmichael Road. Refined Preferred Alternative 2's crossings of Indian Creek are transverse. Flood easements would be acquired at these or other locations if determined appropriate.

Farmland impacts:
1. Existing Property Lines—Where reasonable, alternatives would follow existing property lines and minimize dividing or splitting of large tracts of farmland to reduce the creation of point rows and uneconomical remnants.
2. Farmland Access—Many farm parcels that would lose access as a result of the project would be provided access via new roads as features of the project. Where providing access is not deemed reasonable from an economic standpoint, the disposition of landlocked parcels and uneconomical remnants would be addressed during final design. In several locations overpasses would be provided to maintain the connectivity of local roads. The overpasses would facilitate access to farm operations divided by the Interstate.
3. Farmland Protection—The NRCS has been contacted and appropriate analyses have been conducted in accordance with the Farmland Protection Policy Act for Section 4. In addition, coordination would continue with the NRCS in Section 4 to determine the feasibility of participating in the Farm and Ranch Lands Protection Program.

Water body modifications impacts:
1. Signage—Water bodies, wetlands and other natural areas outside the construction limits but within the right-of-way would be delineated and posted with "Do Not Disturb" signs.
2. Tree Clearing—Tree clearing and snag removal would be kept to a minimum and limited to within the construction limits and calendar requirements. In the median, tree clearing would be kept to a minimum with woods kept in as much a natural state as reasonable if it is sufficiently outside any clear zone requirements.
3. Stream Relocations—The realignment of surface streams or impacts to riffle-pool complexes and natural stream geomorphology would be avoided where reasonable. In instances where this is not possible, stream impacts would be minimized and mitigated. Stream relocations within Indiana bat maternity colony areas would be completed using the natural channel design features that are identified through coordination with the resource agencies. Stream mitigation would be completed to adequately mitigate for linear feet of stream impacts in coordination with both the USACE and IDEM. Stream relocation located within the Indiana bat maternity colony areas and the Winter Action Area may include but would not be limited to stream designs that incorporate

riffle/run/pool/glide or step/pool sequences and sinuosity to replicate natural channel geomorphology, in stream natural structures (log and rock vanes) to help prevent streambank erosion, and riparian buffer plantings outside the clear zone of the roadway. Off-site channel restoration for compensatory mitigation would also be completed including the same natural channel design features. Per IDEM comments received on the DEIS, consideration will be given in the design phase to planting trees and shrubs along relocated streams and outside right-of-way edge. Continued efforts would be made during final design to identify design features that would minimize impacts at stream crossings, including measures to keep channel and bank modifications to a minimum and, where feasible, avoid channel alterations below the ordinary high water mark elevation. Mitigation of stream impacts included the proposed installation of three-sided culverts or oversized box culverts sunk into the streambed that would retain the natural channel bottom, thereby facilitating the migration of stream fauna through the culverts, and reducing impacts to the flow rate. The culverts should be of sufficient size to prevent upstream bed instability and erosion of downstream banks. Per IDEM written comments on the DEIS, a firm commitment was added to evaluate measures for bank stabilization, reinforcement and erosion control for final design of the South Connector Road bridge over Indian Creek to minimize natural channel migration. Per IDNR written comments on the DEIS, a firm commitment was added that during the design phase, consideration would be given to using alternative armoring materials and including portions of dry land under the bridge opening that is not armored with riprap. The use of bio-engineering techniques to provide natural armoring of stream banks would be considered and implemented where practicable. Installation of riprap would be limited to areas necessary to protect the integrity of structures being installed. If riprap is required, it would be installed outside the thalweg and between the toe of slope and the ordinary high water mark (OHWM) where possible. In some instances, such as culvert inlets and outlets, riprap may need to be placed within the thalweg to prevent scour. Riprap would be installed at the same elevation as the thalweg to avoid fish passage issues. Riprap may also be needed above the OHWM to protect bridge piers and abutments from scour where bio-engineering will not suffice. Any stream relocations required within an Indiana bat maternity colony area in Section 4 would be completed with a natural stream design. USFWS would be included in the coordination regarding the relocation during the permitting process to assure that any concerns relative to the Indiana bat are addressed as part of the stream relocation.

4. Below-water Work—Where reasonable, below-water work would be restricted to placement of piers, pilings and/or footings, shaping of spill slopes around the bridge abutments, and placement of riprap.

5. Channel Work—Where reasonable, channel work and vegetation clearing would be restricted to within the width of the normal approach road right-of-way.

6. Artificial Bank Stabilization—The extent of artificial bank stabilization would be minimized. Soil bio-engineering techniques for bank stabilization would be considered where situations allow.

7. Riprap—If riprap is utilized for bank stabilization, it would be of appropriate size and extend below the low-water elevation to provide for aquatic habitat.
8. Culverts—Culverts and other devices would be placed so that they do not preclude the movement of fish and other aquatic organisms. Culverts and other devices would be used to preserve existing drainage patterns. Consideration would be given to oversized culverts to allow for the passage of small fauna at locations where it is determined to be appropriate and reasonable.
9. Erosion Control—Erosion control devices such as burlap, jute matting, grading, seeding and sodding would be used to minimize sediment and debris in tributaries of the project.

Ecosystems impacts:
1. Do Not Spray Or Mow—Where woody vegetation, wetlands, wildflowers or environmentally-sensitive locations occur, "Do Not Spray or Mow" signs would be posted.
2. Invasive Plant Species—INDOT is a member of the Invasive Plant Species Assessment Group (IPSAWG), and as a member, develops recommendations for selling and planting plant species in the State. In mitigation sites and within the proposed right-of-way for Interstate 69, INDOT would use appropriate herbicides and/or physical mechanisms to control invasive plants, such as purple loosestrife, canary reed grass, kudzu, Japanese knotweed and others.
3. Migratory Bird Treaty Act—Coordination with the USFWS would continue pursuant to the Migratory Bird Treaty Act of 1918.
4. Conservation Measures for Wildlife—Transportation designers would work with appropriate agencies to determine the most feasible and practical conservation measures for the maintenance of wildlife movements and landscape connectivity.
5. Mitigation Measures for Wildlife—In a letter dated September 28, 2006, the Indiana Department of Natural Resources (IDNR) made several recommendations related to wildlife crossings. The IDNR recommended crossings where habitat is present on both sides of the road, and in lowland and upland locations. They recommended that any new bridges and redesigned bridges in areas of high wildlife use have design specifications that provide for wildlife habitat connectivity including an adequate space under bridges with dry land unarmored with riprap with minimum dimensions (8 feet tall by 24 feet wide) to allow for wildlife passage. In addition, the IDNR recommended deer exclusion fencing. They also recommended that bridges and culverts should extend beyond top of bank or contain an above-water ledge for wildlife use, and culverts should consist of a natural bottom. In addition, they stated because of the width of the roads and right-of-ways, grated culverts would be required in some areas to provide light in the passage, thus facilitating their use. Areas with heavy white-tailed deer traffic would provide bridges or culverts large enough to pass a male deer with antlers. Smaller culverts can be used for passage of smaller animals (e.g. small mammals, reptiles and amphibians). The IDNR also recommended other appropriate mitigation measures be implemented where the highway crosses significant habitat area, including placing any lights on the shortest poles possible to limit the spread of light and shielding the light so it

only shines on the highway and not up or out from the road. In the Tier 2 Section 4 BA, it has been committed that any lights installed will be at least 40 feet above the highway in order to avoid collisions between bats and vehicles. Non-diffuse lighting would be used when possible. Details of lighting would be identified during the final design. Based on habitat and landscape connectivity and in coordination with the IDNR, mitigation measures specific to Section 4 include 37 potential wildlife crossings. The IDNR recommended several crossings in Section 4. Of these recommended crossings, INDOT is committing to providing wildlife crossings that meet or exceed the minimum dimensions of 8 feet tall by 24 feet wide (of dry crossing) at the following 11 locations:

1. Black Ankle Creek (including CR 600E)
2. Dry Branch (including Dry Branch Road/CR750E)
3. Plummer Creek (including Mineral Koleen Road/CR 360S)
4. Mitchell Branch
5. Mitchell Branch Tributary (including SR 54)
6. Indian Creek A (including Carmichael Road)
7. Indian Creek B
8. Indian Creek C
9. Indian Creek D
10. Clear Creek Tributary D (formerly Happy Creek)
11. Clear Creek Tributary E (formerly May Creek)

Structures at the following 18 locations would provide additional opportunities for wildlife movement across the interstate, but may or may not meet the minimum 8 feet by 24 feet (of dry crossing) dimension requirements. When feasible, these crossings would be designed to meet the specified dimensions. The majority of the crossings below are intermittent or ephemeral in nature, thus potentially providing crossing opportunities within the stream channel during dry periods.

1. Doans Creek Tributary A
2. Doans Creek Tributary B
3. Bogard Creek Tributary
4. Flyblow Branch
5. Black Ankle Creek Tributary
6. Plummer Creek Tributary
7. Little Clifty Branch Tributary A
8. Little Clifty Branch Tributary B
9. Mitchell Creek Minor Tributary
10. Indian Creek Tributary A
11. Indian Creek Tributary B
12. Indian Creek Swale
13. Indian Creek Tributary Swale
14. Indian Creek Tributary C
15. Clear Creek Tributary A
16. Clear Creek Tributary B
17. Clear Creek Tributary C
18. Clear Creek Tributary F

In addition, two other possible wildlife crossings are recommended. They include:
1. Dowden Branch Tributary
2. Dowden Branch

Roadway designs for Section 4 also show bridges crossing over the following six roads, which could also provide additional opportunity wildlife movement across the interstate.
1. Carter Road (connector roadway)
2. Breeden Road
3. Rockport Road
4. Lodge Road
5. Tramway Road
6. Bolin Lane

The above proposed structures are located where habitat is present on both sides of the road and are in lowland and upland areas. Eleven of the above structures, as currently proposed, would provide a wildlife crossing in excess of the minimum dimensions required to allow larger mammals (i.e. deer) to pass (at least 8 feet high by 24 feet wide of dry crossing) beneath the highway. The larger dimensions of these structures as well as using 3-sided structures would help promote the maintenance of aquatic communities and wildlife movement. The remainder of crossings would also provide additional crossing opportunities for smaller wildlife including small mammals, amphibians and reptiles using smaller culverts and pipes. In addition, overpasses would be constructed at the Carter Road, Breeden Road, Rockport Road, Lodge Road, Tramway Road and Bolin Lane locations which could also aid in wildlife movement. During the design phase, and where appropriate and practicable, the following measures may be implemented: grating culverts in order to provide natural lighting, incorporating vegetation plantings that would provide adequate cover for wildlife to access these crossings from adjacent areas of cover, fencing to funnel wildlife toward these crossings would also be evaluated during design, vegetation plantings and fencing would be assessed in regards to the habitat remaining after final design, the final size of structures, topography, fill material used in the roadway, and cost, natural bottoms for the box culverts would be used for these crossings where feasible to further promote maintenance of aquatic communities and wildlife movement, efforts would be made to promote cross-connectivity and permeability for wildlife in Section 4. In addition, a number of the wildlife crossings are located within or near proposed mitigation properties.

9. General evaluation criteria under the public interest review. We considered the following within this document:

   a. The relative extent of the public and private need for the proposed structure or work. (e.g. Public benefits include employment opportunities and a potential increase in the

local tax base. Private benefits include land use and economic return on the property; for transportation projects benefits include safety, capacity and congestion issues.) *Explain.* The proposed crossings would advance the National Interstate 69 Project, which is needed to facilitate interstate and international movement of freight through the Interstate 69 corridor. Benefits from the proposed crossings would include: (1) increased access of area communities to the Interstate system; (2) reduction in travel time to regional business destinations (Evansville, Bloomington, and Indianapolis); (3) reduction in congestion on rural roadways; (4) reduction in number of crashes in the Section 4 area; (5) reduction in the number of trucks on area highways; (6) increase in access of area businesses to the Interstate system; and (7) provision of interchange locations suitable for stimulating economic development.

b. ☒ There are unresolved conflicts as to resource use however there are no practicable reasonable alternative locations and methods to accomplish the objective of the purposed work. *Explain.* One of the Hoosier Environmental Council's objections to the proposed project is that the alternative that would use existing US 41 and Interstate 70 would be the least environmentally damaging practicable alternative. This alternative would not meet the project goals and has been determined not to be practicable. As discussed in the alternatives section, the proposed project has fewer impacts to aquatic resources than any of the other practicable alternatives.

c. The extent and permanence of the beneficial and/or detrimental effects, which the proposed work is likely to have on the public, and private uses to which the area is suited. ☒Detrimental impacts are expected to be minimal although they would be permanent in the construction area. The beneficial effects associated with utilization of the property would be permanent. *Explain.* The proposed crossings would be located in forested areas and agricultural fields. These areas are currently privately owned and they would be converted to a public Interstate. The proposed crossings include 9.42 acres of wetland and open water that would be cleared and filled and 88,462 linear feet of stream that would be relocated, culverted, and/or lined with riprap to facilitate the construction of the Interstate.

10. Determinations.
    a. Public Hearing Request: ☐NA

    ☒ I have reviewed and evaluated the requests for a public hearing. There is sufficient information available to evaluate the proposed project; therefore, the request for a public hearing is denied. The determination not to hold a public hearing was made in writing on September 4, 2012. The commenters that requested a public hearing were informed of the District's determination not to hold a public hearing in a letter dated September 6, 2012. HEC replied in a letter dated September 20, 2012 with a request to reconsider this determination since no effort was made by the Corps to resolve HEC's comments. The Corps disagrees. All of their concerns were adequately identified, shared with the applicant, and fully considered during the evaluation process for this application.

    b. Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations

implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

c. Relevant Presidential Executive Orders.

(1) EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians. ☒This action has no substantial direct effect on one or more Indian tribes. *Explain, if appropriate.*

(2) EO 11988, Floodplain Management. ☐Not in a floodplain. (☒Alternatives to location within the floodplain, minimization, and compensation of the effects were considered above.)

(3) EO 12898, Environmental Justice. In accordance with Title III of the Civil Right Act of 1964 and Executive Order 12898, it has been determined that the project would not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin nor would it have a disproportionate effect on minority or low-income communities.

(4) EO 13112, Invasive Species.
☐There were no invasive species issues involved.
☒The evaluation above included invasive species concerns in the analysis of impacts at the project site and associated compensatory mitigation projects.
☐Through special conditions, the permittee will be required to control the introduction and spread of exotic species.

(5) EO 13212 and 13302, Energy Supply and Availability. ☒The project was not one that will increase the production, transmission, or conservation of energy, or strengthen pipeline safety. (☐The review was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy-related (including pipeline safety) project while maintaining safety, public health, and environmental protections.)

b. Finding of No Significant Impact (FONSI). Having reviewed the information provided by the applicant and all interested parties and an assessment of the environmental impacts, I find that this permit action will not have a significant impact on the quality of the human environment. Therefore, an Environmental Impact Statement will not be required.

c. Compliance with 404(b)(1) guidelines. ☐NA

Having completed the evaluation in paragraph 5, I have determined that the proposed

discharge ☒complies/☐does not comply with the 404(b)(1) guidelines.

d. Public Interest Determination: I find that issuance of a Department of the Army permit ☒is not/☐is contrary to the public interest, if properly conditioned. Therefore, I have decided to issue the requested Department of the Army permit subject to all Standard Conditions and the following Special Conditions:

1. The permittee shall provide on-site mitigation in accordance with the "I-69 Section 4 Water Resource Mitigation and Monitoring Plan," dated September 22, 2011 and updated March 5, May 15, and May 16, 2012. On-site mitigation shall consist of the use of natural stream design in the relocation of 888 linear feet of Plummer Creek, 473 linear feet of Black Ankle Creek, 408 linear feet of an unnamed tributary to Mitchell Branch, and 1,398 linear feet of an unnamed tributary to Clear Creek. In addition, the permitee shall mitigate impacts to a total of 8,166 linear feet of 2 intermittent streams and 11 ephemeral streams which shall be accomplished partly through the installation of step pools for grade control and the placement of natural substrate in the relocated portions of these streams.

2. The permittee shall provide 85,500 linear feet of stream and 114.89 acres of wetland mitigation to include 18.4 acres of emergent, 8.43 acres of scrub-shrub, and 71.96 acres of forested wetland and preserve 12,750 linear feet of ephemeral stream in accordance with the "I-69 Section 4 Water Resource Mitigation and Monitoring Plan," dated September 22, 2011 and updated March 5, May 15, and May 16, 2012. Out of the provided wetland mitigation, a minimum of 9.8 acres of emergent, 0.57 acre of scrub-shrub, and 7.25 acres of forested wetland must be determined to be successful.

3. The permittee shall monitor the mitigation sites annually for a period of ten years. This monitoring shall include annual stream monitoring, using the Headwater Habitat Evaluation Index (HHEI) or the Qualitative Habitat Evaluation Index (QHEI), as appropriate for the size of the stream, at the mitigation sites. The annual survey data should be collected at the same time each year, selected during the June-September period, at each mitigation stream reach. The survey should be designed to be readily comparable from year to year. The permittee shall submit monitoring reports to the U.S. Army Corps of Engineers, Indianapolis Regulatory Office, by December 31 every year of monitoring.

4. If 30 percent of the survey channel segments at the mitigation sites fail to maintain at least their original length in linear feet and to achieve a HHEI/QHEI score of at least 40 during any annual monitoring event, adaptive management/corrective actions shall be proposed, assessed, approved by the U.S. Army Corps of Engineers, and performed.

5. The permittee shall permanently protect the mitigation areas by recording restrictive covenants or conservation easements approved by the Corps in the appropriate county recorders' offices. A draft copy of the deed restriction or

conservation easement for each mitigation area shall be submitted within 90 days of the issuance of this Department of the Army permit for Corps review and approval. A signed and recorded copy of each approved instrument shall be submitted to the Corps within 30 days following notification from the Corps of its approval. The Corps shall be notified in writing prior to the transfer of any mitigation site to another entity or individual.

6. The permittee's responsibility to complete the required compensatory mitigation as set forth in the above listed special conditions shall not be considered fulfilled until it has demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers.

7. This Corps permit does not authorize you to take an endangered species, in particular the Indiana bat (*Myotis sodalis*). In order to legally take a listed species, you must have separate authorization under the ESA (e.g., an ESA Section 10 permit, or a BO under ESA Section 4, with "incidental take" provisions with which you must comply). The enclosed USFWS BO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

8. The enclosed Memorandum of Agreement (MOA) between the FHWA and the Indiana SHPO includes measures to be implemented in order to take into account the effect of the project on historic properties. Your authorization under this Corps permit is conditional upon your compliance with all of the terms and conditions associated with the MOA and any future modifications, which are incorporated by reference in this permit. Failure to comply with the MOA would constitute non-compliance with your Corps permit.

9. The enclosed I-69 Section 4 Karst Agreement between INDOT, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and U.S. Fish and Wildlife Service includes measures to be implemented in order to minimize the effect of the project on karst features. Your authorization under this Corps permit is conditional upon your compliance with all of the terms and conditions associated with the Karst Agreement and any future modifications, which are incorporated by reference in this permit. Failure to comply with the Karst Agreement would constitute non-compliance with your Corps permit.

FOR THE DISTRICT ENGINEER:

James M. Townsend
Chief, Regulatory Branch
Louisville District

9-28-2012
Date: