Reset Form

Indiana Department of Natural Resources
Division of Water

Construction in a Floodway Assessment
Part of State Form 55233

As mandated by the regulations of the Flood Control Act, IC 14-28-1 and the Floodplain Management rules, 312 IAC 10, a construction project in a floodway requires a permit application review that includes a hydrologic and hydraulic evaluation to determine the effect a project may have on the base flood elevation and an environmental review to determine the impact a construction project may have on fish, wildlife, and botanical resources.

Hydrologic and Hydraulic Evaluation
The Division of Water assesses the change to the effective cross sectional flow area resulting from proposed construction projects in order to minimize cumulative effects on the base flood elevation. Construction projects located in a floodway can result in varying degrees of loss to the effective cross sectional flow area. The Division of Water developed non-modeling hydraulic assessment worksheets to assess specific construction projects that result in negligible loss of the effective cross sectional flow area. If negligible loss cannot be demonstrated through a non-modeling assessment approach or if a cumulative loss of the effective cross sectional flow area exists from other construction projects, computer modeling will be required to be submitted to evaluate the effects the proposed project will have on the base flood elevation. For more information on computer modeling, refer to General Guidelines for the Hydrologic-Hydraulic Assessment of Floodplains in Indiana at www.in.gov/dnr/water/3483.htm .

Non-Modeling Hydraulic Assessment Worksheets
Specific to each non-modeling assessment approach, examples of typical project types are provided on each worksheet to assist you in selecting the appropriate worksheet for your specific project. For more information about what project types are used in each non-modeling assessment approach, refer to the Construction in a Floodway Assessment User Guide.

1) No Change in Effective Cross Sectional Flow Area Non-Modeling Worksheet (State Form 55238).
2) Change in Effective Cross Sectional Flow Area Non-Modeling Worksheet (State Form 55236).
    a) Companion Worksheet A (State Form 55237)
3) Ineffective Area of the Contraction or Expansion Reach of a Stream Crossing Non-Modeling Worksheet (State Form 55235).
4) Bridge Non-Modeling Worksheet (State Form 55233) *and* associated Companion worksheet
    a) Bridge Non-Modeling Companion Worksheet B (State Form 55234) for bridge replacement-in-kind, bridge widening, pier wrap, or scour repair project for roadway.

Fish, Wildlife, and Botanical Impact Assessment
In the permit application review process, the Divisions of Fish and Wildlife, Nature Preserves, and Outdoor Recreation assess the cumulative impacts that construction projects in the floodway may have on fish, wildlife, and botanical resources. Each Non-Modeling Hydraulic Assessment Worksheet includes the minimum plan requirements and computations necessary to assess impacts on flora and fauna and the potential for required mitigation.

These worksheets serve to communicate the framework used to evaluate a project's cumulative impacts to the effective cross sectional flow area and fish, wildlife, and botanical resources in the floodway. These worksheets are meant to relay the information needed to evaluate the vast majority of projects but cannot describe the information needed for all scenarios and all potential projects. The purpose of the worksheet is to balance the need for transparency of the evaluation methods and information needed for a particular project; the preparer's discernment is still needed when preparing an application and supporting documents for review to meet the statutory requirements.

For more information, Non-Modeling Hydraulic Assessment Worksheets, Companion Worksheets, Construction in a Floodway Assessment User Guide, Worksheet Examples, General Guidelines for the Hydrologic-Hydraulic Assessment of Floodplains in Indiana, Mitigation Guidelines, the permit Application Manual and training videos are available on our webpage at www.in.gov/dnr/water.

BRIDGE NON-MODELING WORKSHEET

State Form 55233 (R / 9-17)

For Division of Water use: Application _____

An assessment using the Bridge Non-Modeling Worksheet is appropriate to use for a bridge replacement-in-kind, bridge widening, pier wrap, or scour repair project for roadway, railroad, pedestrian, golf cart, or private access structures. This non-modeling approach may be applicable to assess a bridge replacement project where the flow regime is not changing for:

- a bridge or culvert structure that is being replaced with a bridge structure, or
- a culvert structure that is being replaced with a culvert structure if:
    - the length of the proposed culvert is essentially the same as the existing culvert, **AND**
    - the proposed culvert is made of like-material to that of the existing culvert so that the roughness coefficient remains equal to or smaller than that of the existing culvert.

If multiple design options are being considered for any of the above replacement-in-kind proposals, the proposed design with the smallest waterway opening value should be used in completing the worksheet(s).

A non-modeling assessment approach cannot be used for any one of the following bridge projects:

- the flow regime of the existing structure is changing from energy flow to pressure flow on the proposed structure,
- the waterway opening beneath the replacement structure is smaller than the waterway opening beneath the existing structure,
- a new stream crossing structure is proposed and the existing structure is to remain in its current location,
- a bridge structure is being replaced with a culvert structure,
- the location of the replacement structure is more than 500’ from the location of the existing bridge structure.

If any one of the above five scenarios exist for the proposed project, computer modeling in accordance with the General Guidelines for the Hydrologic-Hydraulic Assessment of Floodplains in Indiana will be required to be submitted to assess the effect on the base flood elevation.

To determine if a project will qualify for the non-modeling hydraulic assessment approach, a Companion Worksheet is required to be completed and submitted with the permit application. We recommend that you first complete the Companion Worksheet: Bridge Non-Modeling Companion Worksheet B (State Form 55234) to determine if the project can be assessed by a non-modeling approach.

Unless the instructions in this document direct you otherwise, all plan details, questions, and computations in the worksheets must be addressed to adequately evaluate a project under a non-modeling assessment approach.

The minimum documentation specified below in this document must be submitted to the Division of Water along with a completed, signed, and dated application form (State Form 42946) and the appropriate application fee.

Minimum Plan Details and Computation Requirements:

1) Plan Details and Supporting Documentation

For each of the minimum plan details described in the following chart, complete Column 1 and Column 2. The required plan view items can be combined into one or more plan drawings as long as the information is clearly defined.

Column 1 *Indicate with V if item is included.*	Column 2 *Indicate page or sheet number for each required item.*	Column 3 Minimum Plans Required	Column 4 For Division of Water use only.
☐		A map that clearly identifies the location of the proposed project site in relationship to the waterway and surrounding roadways	☐ Accepted ☐ Item Not Clear
☐		An aerial plan view that illustrates disturbed area of the project site	☐ Accepted ☐ Item Not Clear
☐		A plan view that illustrates the proposed project's construction components. Indicate permanent and temporary components throughout the project site.	☐ Accepted ☐ Item Not Clear
☐		A plan view of the floodway throughout the project limits	☐ Accepted ☐ Item Not Clear
☐		A cross section view(s) showing an overlay comparison of the pre-construction conditions and post-construction conditions of the effective cross sectional flow area that includes: 1) dimensions and calculated area of the waterway opening 2) the elevation of the top of road profile extended to an elevation (beyond the floodway limits) that exceeds the base flood elevation and using the same datum for both 3) elevation of the low structure (chord) of the bridge Cross sections should be stationed left to right, looking downstream, full-valleyed, and oriented perpendicular to flow.	☐ Accepted ☐ Item Not Clear
☐		Describe the methodology used to compute the waterway opening, e.g. identify the software or show computations.	☐ Accepted ☐ Item Not Clear
☐		A plan view that clearly marks the location(s) and label of the cross section(s)	☐ Accepted ☐ Item Not Clear

Plan Details and Supporting Documentation continued

☐		Photos that illustrates the natural and manmade surroundings, e.g.: 1) from the bridge deck, a downstream view of the channel 2) from the bridge deck, an upstream view of the channel 3) from a downstream streambank, a view of the downstream bridge deck and waterway opening 4) from an upstream streambank, a view of the upstream bridge deck and waterway opening Label orientation of each photo	☐ Accepted ☐ Item Not Clear
☐		Plans require horizontal and vertical scale, vertical datum, north arrow, labels, stations, and date.	☐ Accepted ☐ Item Not Clear
☐		The completed Bridge Non-Modeling Companion Worksheet B (State Form 55234)	☐ Accepted ☐ Item Not Clear

2) Fish, Wildlife, and Botanical Impact Assessment

If a delineated floodway exists at the project site, compute the disturbance values in the following charts. For sources of delineated floodways, refer to the Indiana Floodplain Information Portal at www.INFIP.dnr.IN.gov or FEMA Map Service Center at www.msc.fema.gov.

If a floodway delineation is not available at the project site AND if you have answered Yes to Questions 2 and 3 on the Bridge Non-Modeling Companion Worksheet B (State Form 55234), skip the disturbance values in the following charts. Sign and date the worksheet at the bottom of this page and submit the worksheet with the permit application.

If the proposed construction exceeds the disturbance thresholds outline in the Floodway Habitat Mitigation, a mitigation plan is likely to be required. During the permit application review process, a Division of Fish and Wildlife biologist will contact you if a mitigation plan is required. For information concerning mitigation requirements, refer to the Natural Resources Commission Bulletin #17, http://www.in.gov/legislative/iac/20120801-IR-312120434NRA.xml.pdf

Total number acres in floodway disturbed by project construction = _____ acres

Riparian habitat disturbance computation:

Type of Riparian Habitat	Number acres in floodway disturbed by project construction
A) Non wetland tree removal in rural area	
B) Non wetland tree removal in urban area	
C) Early successional habitat	
Total A, B, & C	

In-stream disturbance computation:

Total number of linear feet of in-stream disturbed by project construction = _____ linear feet

Wetlands disturbance computation:

Type of Riparian Habitat	Number acres in floodway disturbed by project construction
A) Palustrine Forested wetlands	
B) Palustrine Scrub-shrub wetlands	
C) Palustrine Emergent wetlands	
Total A, B, & C	

Be aware that after reviewing the submitted plans and computations in the worksheet, the IDNR staff may request additional documentation if sufficient evidence has not been provided that clearly demonstrates the effect that the project may have on the base flood elevation or impacts to fish, wildlife, and botanical resources in the floodway.

_____ _____

Name of Preparer Date *(month, day, year)*