Hydraulics - Various Topics

Mark Bailey, PE
Office of Hydraulics Manager, INDOT

October 19th, 2016
INDOT Hydraulics

- Design Manual Updates
- Practice Pointers
- ERMS submittals
Design Manual Updates

- http://www.in.gov/indot/design_manual/design_manual_2013.htm#
Design Manual Updates

- Bridges - none (coming soon)

- Culverts -
  - Minor revisions to the In-Kind Culvert Replacement section.
  - Added a requirement to run a semi-smooth culvert option with an n of 0.015 for all replacement projects.
  - Requiring version 7.2 of HY-8
Design Manual Updates – coming soon

- Minor revisions to the In-Kind Culvert Replacement section.
- Existing backwater > 3’, proposed 3’ or <
- Minimum pipe size for jacking under interstate as part of a liner project is 18”
Design Manual Updates – coming soon

- **Bridge Backwater**

<table>
<thead>
<tr>
<th>If the existing backwater is...</th>
<th>The allowable backwater will be...</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 3 feet</td>
<td>3 feet or less</td>
</tr>
<tr>
<td>Between 0.14 and 3 feet</td>
<td>Match or improve existing</td>
</tr>
<tr>
<td>Less than 0.14 feet</td>
<td>Up to 0.14 feet</td>
</tr>
</tbody>
</table>
Design Manual Updates – coming soon

**Spans:**
1.) Number of spans not increased
2.) Spans between piers not decreased
3.) Total out-to-out span not decreased

**Slopes:**
1.) Change from vertical to sloping abutments allowed, but
2.) Check 10% EP to make sure elevation not increased

**Road**
1.) Include impacts of changes to guardrail / barrier rail

**Overflow:**
Practice Pointers

- Bridge Rehab Project - Scour Analysis?
- Send an email to mbailey1@indot.in.gov?
- Call (317) 233-2096 and ask?
- Look it up yourself first!
### Practice Pointers

#### Completed Reports

<table>
<thead>
<tr>
<th>Inspection Date</th>
<th>Last Revision</th>
<th>Asset Code</th>
<th>Owner</th>
<th>Asset Type</th>
<th>Inspection Type</th>
<th>NBI 007: Facility Carried by Structure</th>
<th>NBI 006: Feature Intersected</th>
<th>Approved Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/19/2015</td>
<td>12/29/2015</td>
<td>000030</td>
<td>Everman, Chris</td>
<td>Bridge</td>
<td>Routine</td>
<td>SR 1</td>
<td>BRUSHY FORK</td>
<td>12/29/2015</td>
</tr>
<tr>
<td>12/30/2013</td>
<td>12/02/2015</td>
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<td>01/12/2012</td>
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<td>Wolfe, Mark</td>
<td>Bridge</td>
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<td>SR 1</td>
<td>BRUSHY FORK</td>
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</tr>
<tr>
<td>12/22/2009</td>
<td>06/01/2011</td>
<td>000030</td>
<td>Wolfe, Mark</td>
<td>Bridge</td>
<td>Routine</td>
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<tr>
<td>01/09/2008</td>
<td>06/01/2011</td>
<td>000030</td>
<td>Bridge</td>
<td></td>
<td></td>
<td></td>
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#### ERMS data has not been loaded for this Asset

[Get ERMS data]
## Practice Pointers

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### History / Notes

No history or notes found.

### Bridge File

<table>
<thead>
<tr>
<th>Document Title</th>
<th>Document Date</th>
<th>Original File Name</th>
<th>County</th>
<th>Structure #</th>
<th>Document Type</th>
<th>Y</th>
<th>Y</th>
</tr>
</thead>
</table>
INDIANA DEPARTMENT OF TRANSPORTATION

Subject: Hydraulics Review
Status: Final Design
Structure: 1-13-110K
Day: 11/24/2015
Project: Score Analysis
Corridor: Brown Fork Creek

TO: Donald McCord, PE
Sr. Bridge Design Engineer

FROM: Vinson McCurdy, S.E.
Hydraulic Engineer

November 24, 2015

The above data is based on the flow line elevation of 534 ft. The velocity indicated is the maximum velocity through the bridge, instead of the average velocity. The above score depth is based on visible material.

Based on the information above, this structure is not score critical. However, if score communities are still desired, Class 2 sprays should be placed based on the standard specifications. Even though the velocity at Q100 is greater than the minimum for Class 2 sprays, this velocity is based solely on the watershed upstream, not on the back up from Tanners Creek. The velocity that this structure actually uses is less than what the model produces. Based on the inspection report, there is minor score at the upstream sprays. However, based on the pictures in the inspection report, it seems that upstream has improved and the score is covered.

This project will need a CIP permit if score communities are placed because the minor score from the structure would be within 7% of the score criteria during a 4% KF storm event.

If you have any questions or comments, please contact me at (317) 233-2278.

VAM

www.in.gov/dot
An Equal Opportunity Employer
Practice Pointers

What other data is in InspectTech?

- Bridge Inspections
- As-built drawings
- Plans
- Reports
- Correspondence
- ......
Looks great, how do I get access?

- Consultant – ask your BIAS administrator
- INDOT – send an email to inbridgeshelp@indot.in.gov
- County – your consultant that submits your bridge inspection reports
Please read the manual as the application has changed. Please click on the 📄 icon in the upper left.

Select files
Add files to the upload queue and click the start button.

Drag files here.

Enter File Information

©Indiana Department of Transportation
ERMS submittals

- **Let your coordinator know!**
  - Send an email to indotcoordinatorX@indot.IN.gov
  - X=
    - 1 for Crawfordsville
    - 2 for Fort Wayne
    - 3 for Greenfield
    - 4 for LaPorte
    - 5 for Seymour
    - 6 for Vincennes
ERMS submittals

- Internal file shuffling
What should I say in my submittal email to my district coordinator and who else should I copy?

- Project name
- INDOT District or LPA
- County if LPA
- Des #
- Structure #
- Type of submittal
**Project name**

- US 31 over Grassy Creek
- CR 300 N over Buck Creek
- Guilford Rd Reconstruction
- Fairfield Causeway Road over Brookville Lake
- SR 18 from SR 43 to Wood St
- I-74 0.9 mi W of SR 32
- CV 026-12-56.15
ERMS submittals

- Type of submittal
  - Scour Analysis
  - Bridge Replacement
  - Bridge Rehab
  - Small Structure Replacement
  - Small Structure Liner
  - Detention
  - Storm Sewer
ERMS submittals

- Who should I copy from INDOT?
  - The project manager
ERMS submittals

- What if I still do cover letters?
Other tips

- 1 submittal per Des #
- contact person with contact info if your reviewer has any questions
Examples - The Good

From: Aaron Isch [mailto:aaron@eri.consulting]
Sent: Wednesday, September 28, 2016 12:43 PM
To: INDOT Coordinator 2 <IndotCoordinator2@indot.in.gov>
Cc: Langmaid, John <JLANGMAID@indot.in.gov>
Subject: 1383457 - Hydraulics Upload

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Coordinator 2,

We have uploaded Hydraulics documents for a culvert replacement that is part of the bridge replacement on Hillegas Rd over US 30, Des 1383457. Please see the attached transmittal letter for more information.

Thanks,

Aaron Isch, P.E.
Engineering Resources, Inc.
11020 Diebold Road Fort Wayne, IN 46845
Direct (260) 451-5702  |  Office (260) 490-1025 Ext. 280
aaron@eri.consulting

From: MfutUploads@indot.in.gov [mailto:MfutUploads@indot.in.gov]
Sent: Wednesday, September 28, 2016 12:41 PM
To: Aaron Isch <aaron@eri.consulting>
Subject: Multiple File Upload Tool (MFUT) Confirmation

Please do not respond to this email. It is automatically generated.

The following files were added successfully into the ERMS system for user AISCH01:

| HYD DsnComps 1383457 for Bridge Services.pdf as document type of Design Documents |
| TCM Title: HYD DsnComps 1383457 for Bridge Services |
From: Kokosinski, Elizabeth [mailto:EKokosinski@structurepoint.com]
Sent: Tuesday, September 27, 2016 4:58 PM
To: INDOT Coordinator 1 <indotcoordinator1@indot.IN.gov>
Cc: Logeman, Adam <alogeman@structurepoint.com>; Day, Dave <Dday@structurepoint.com>; Ahmed, Arshad <ArAhmed@indot.IN.gov>
Subject: HYD Upload for DES 1500302

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Coordinator 1,

15 files have been revised and electronically uploaded onto the ERMS system for review, including the letter of transmittal.

DES NO.: 1500302
Proj. NO.: 1500302
Project: SR 234 over Jones and Armstrong Ditch (Replacement)
Submittal: Hydraulics

Attached to this email is a copy of the transmittal letter for the submittal and a receipt of the uploaded documents; the transmittal letter has been included in the posted documents.

If you have any questions, please contact me at the information below.

Thank you,

Elizabeth M. Kokosinski, EI
Design Engineer, Bridge Group
The 4 files listed below have been successfully uploaded to ERMS.

From: MfutUploads@indot.in.gov  
Sent: Tuesday, October 04, 2016 2:11 PM  
To: Mike Siffer <m.siffer@gaconsultants.com>  
Subject: Multiple File Upload Tool (MFUT) Confirmation  

Please do not respond to this email. It is automatically generated.

The following files were added successfully into the ERMS system for user MSIFFER01:

<table>
<thead>
<tr>
<th>UCM Title</th>
<th>Content ID</th>
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</thead>
<tbody>
<tr>
<td>HYD DgnComps 0301145 for Bridge Services</td>
<td>DOT_4088344</td>
</tr>
</tbody>
</table>
ERMS submittals

The Bad

From: INDOT Coordinator 2  
Sent: Friday, October 14, 2016 10:27 AM  
To: INDOT Coordinator 8 <indotcoordinator8@indot.in.gov>  
Cc: Langmaid, John <JLANGMAID@indot.IN.gov>; Smith, Gregory <GSmith2@indot.IN.gov>; Lytton, Keith <K1  
Subject: FW: Multiple File Upload Tool (MFUT) Confirmation, Des # 0301145

CO8,  
4 Hydraulic files have been transitioned to Co COORD8 for review.  
Please forward to Mark Bailey.

John & Greg,  
4 Hydraulic files have been received and copied to the project folder.  
Keith,  
Pipiliner for Valentine Ditch, 3.2 mi N of Adams/Allen Co line, small structure # CV 027-002-103.75

L:\CONSULTANT SERVICES\STATE PROJECTS FILES\0301145\Hydraulics\10-14-16

Mandy O’Connor  
Administrative Assistant - Capital Program Management  
5333 Hatfield Road  
Fort Wayne, IN 46808  
Office: (260) 969-8319  
Email: aoconnor@indot.in.gov

Indiana
A State that Works
ERMS submittals

- The Ugly
The End

- Thank you for your attention and help with ERMS submittals.
- Any questions?