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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DOTLOGO2.TIF | | | | | | | | | | | | | | | | | | | | | | | **Hydraulic Report Data Sheets** | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Route | |  | | | | | | | | | | | | | | | | | | | | | P or D # | | | | | | | | | | |  | | | | | | | | | | | |
| Section | |  | | | | | | | | | | | | | | | | | | | | | PTB # | | | | | | | | | | |  | | | | | | | | | | | |
| County | |  | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| Exist SN | |  | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| Prop SN | |  | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
|  | |  | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | |
| **General Information** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | Stream name: | | | | |  | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | Structure location: | | | | | |  | | | | | | | | | ¼ of the | | | | | | | |  | | | | | | | | | | | | ¼ of Section | | | | | | , | | | |
|  |  | | | | | | Township | | | | | | | | | , | | | | | | | | Range | | | | | | |  | | | | | of the | | | | |  | | | | P.M. |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | Hydraulic Report Prepared By: | | | | | | | | | Consultant | | | | | | | | | | | | Prime  Sub | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | District | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | Hydraulic Report Approval Authority: | | | | | | | | | | | | | | District – Post PDF of HR to BBS Hydraulics SharePoint Server | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | BBS Hydraulics - Submit 2 hard copies of HR to BBS Hydraulics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Site Design Data** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | Drainage Area (sq. mi.): | | | | | | |  | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | Highway Classification: | | | | | | | | | | | | | | Rural | | | | | | | | | | | | | | | Principal Arterial | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | Urban | | | | | | | | | | | | | | | Minor Arterial | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | Other | | | | | | | | | | | | | | | Collector | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | Local | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. | Design Frequency: | | | | 30 yr  50 Yr.  Other | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. | Number of Waterway Information Tables (WIT): | | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | | | | | | | | | | | | | | | | |
|  | If more than one, explain: | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Hydrologic & Hydraulic Analysis** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. | Hydrology Modeling (check all that apply): | | | | | | | | | | | | | | | | | | | | USGS/Stream Stats  FIS  Gage Data | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | Other | | | | | | | | |  | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10. | Hydraulic Modeling (check all that apply): | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | |
|  | a. Method: | | HEC-RAS  WSPRO  Other | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | |
|  | b. Manning's "n" values determined per IDOT Drainage Manual Chap. 5? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes  No | | | | | | | | | | |
| If no, explain: | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c. Source of Starting WSE: | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| d. Non- IDOT encroachments in Survey? | | | | | | | | | | | | | | | | | | Yes  No | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| If yes, are they accounted for? | | | | | | | | | | | | | | | | | | Yes  No | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| e. Does a Tailwater Control exist? | | | | | | | | | | | | | | | | | | Yes  No | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| If yes, list: | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| f. Were the Expansion/Contraction cones properly addressed? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes  No  N/A | | | | | | | | | | | | | |
| If No or N/A, explain: | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| g. What Expansion and Contraction Rates were used? | | | | | | | | | | | | | | | | | | | | | | | | | | | Expansion: | | | | | | | | | | (X:1) | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | Contraction | | | | | | | | | | (X:1) | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **IDNR – OWR Floodway Permit** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11. | Is area experiencing urbanization or expected to urbanize within 10 years? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes  No (Rural) | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12. | Are there any sensitive flood receptors located upstream within possible backwater influence? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes  No | | |
|  | If yes, list and describe critical upstream flood damageable properties and their elevations. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13. | Is there any History of Flooding or Overtopping problems? | | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes  No | | | | | | | | | | | | | | | | |
|  | Sources & dates of Observed Highwater: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14. | Is the structure hydraulically connected to or within the floodway of an IDNR-OWR designated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Public Body of Water?  No  Yes. OWR 3704 Rules apply. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15. | Required IDNR - OWR Permit type: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Individual 3700  SWP #2  SWP #12  Floodway 3708 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | None  Other | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Proposed Structure Data** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | Project Scope (check all that apply): | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | a.  Complete Replacement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | b.  Superstructure Replacement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | c:  Superstructure Widening; Length of Pier Extension in the water: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | U/S | | |  | | | | | | | | | | | | | | | | | | | | | D/S | | | | | | | |  | | | | | | | | | | | | |
|  | d.  Bridge Culvert  Three-sided Bridge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | e.  New Alignment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | f. Work Planned Below Q100 HWE?  Yes  No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | g.  Profile Raise | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17. | If a bridge is proposed, supply: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Flow line elevation (ft): | | | | | | | | | | | |  | | | | | | | | | | |  | | Abutment type: | | | | | | | | | | | | |  | | | | | | |
|  | Preliminary low beam elevation (ft): | | | | | | | | | | | |  | | | | | | | | | | |  | | Skew (degrees): | | | | | | | | | | | | |  | | | | | | |
|  | Width of deck (ft): | | | | | | | | | | | |  | | | | | | | | | | |  | | Number of spans: | | | | | | | | | | | | |  | | | | | | |
|  | Total length from face to face of abutment (ft) | | | | | | | | | | | | | | | | | |  | | | | |  | | | | | | | | | | | | | | |  | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18. | If a culvert is proposed, supply: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Type and size: | | | | | | | | | | | |  | | | | | | | | | |  | | | | Length (ft): | | | | | | | | | | | |  | | | | | | |
|  | Upstream invert elevation (ft): | | | | | | | | | | | |  | | | | | | | | | |  | | | | Entrance type: | | | | | | | | | | | |  | | | | | | |
|  | Downstream invert elevation (ft): | | | | | | | | | | | |  | | | | | | | | | |  | | | | Skew (degrees): | | | | | | | | | | | |  | | | | | | |
|  | Note: Upstream and downstream elevations should reflect the elevations before the standard 3” drop (or other embedment) is applied | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19. | If a three-sided structure is proposed, supply: | | | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | U/S Flow line elevation (ft): | | | | | | | | | | | | |  | | | | | | | | |  | | | Skew (degrees): | | | | | | | | | | | | |  | | | | | | |
|  | Span (ft): | | | | | | | | | | | | |  | | | | | | | | |  | | | Length (ft): | | | | | | | | | | | | |  | | | | | | |
|  | Height (ft): | | | | | | | | | | | | |  | | | | | | | | |  | | | Number of spans: | | | | | | | | | | | | |  | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20. | a. Is the IDOT Clearance Policy met? | | | | | | | | | | | | | | | | Yes  No  NA | | | | | | | | | | | | | | | | | | | | | Value (ft): | | | | | |  | |
|  | b. Is the IDOT Freeboard Policy met? | | | | | | | | | | | | | | | | Yes  No  NA | | | | | | | | | | | | | | | | | | | | | Value (ft): | | | | | |  | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21. | Type of streambed soil : | | | | | | Clay  Silt  Sand  Loam | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | |  | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. | Scour/ Migration Problems: | | | | None/Minimal | | Significant | | | | Severe | | | | |
|  | Comments: |  | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
|  | Ice Concerns: | | | | None/Minimal | | Significant | | | | Severe | | | | |
|  | Comments: |  | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
|  | Debris Concerns: | | | | None/Minimal | | Significant | | | | Severe | | | | |
|  | Comments: |  | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
|  | Proposed or Identified Countermeasures: | | | | |  | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
| **Existing Structure Data** | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
|  |  | | | | | | |  | Structure  U/S | | | Subject  Structure | | | Structure  D/S |
| 23. | Distance from proposed (subject) structure: (ft.) | | | | | | |  |  | | | N\A | | |  |
| 24. | Type of structure: | | | | | | |  |  | | |  | | |  |
| 25. | Low beam elevation: | | | | | | |  |  | | |  | | |  |
| 26. | Flow line elevation: | | | | | | |  |  | | |  | | |  |
| 27. | Maximum known high water elevation: | | | | | | |  |  | | |  | | |  |
| 28. | Date of maximum high water: | | | | | | |  |  | | |  | | |  |
| 29. | Cause (backwater, headwater, etc.): | | | | | | |  |  | | |  | | |  |
| 30. | Does structure carry entire design flood flow? | | | | | | |  | Yes  No | | | Yes  No | | | Yes  No |
|  | If not, state area of additional waterway opening: (ft2) | | | | | | |  |  | | |  | | |  |
| 31. | Type and size of existing overflow structures: | | | | | | |  |  | | |  | | |  |
| 32. | Has adverse scour occurred under or adjacent to the structure? | | | | | | |  |  | | |  | | |  |
| 33. | Classify type of scour and/or aggradation / degradation: | | | | | | |  |  | | |  | | |  |
|  | | | | | | | | | | | | | | | |
| **Required Additional Data** | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
| 34. | Deviations from the General Procedures presented in IDOT Drainage Manual CH. 2, CH.6, and CH.7: | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | |
| 35. | Information regarding high water from other streams, reservoirs, flood control projects, proposed channel changes, or other controls affecting proposed waterway area: | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | |
| 36. | Site Inspection made by: | | |  | | | | | | Date: | | | |  | |
|  | | | | | | | | | | | | | | | |
|  | Remarks: | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | | | |
| 37. | Prepared by: | |  | | | | | | | Date | | |  | | |
|  | | | | | | | | | | | | | | | |
|  | Signed (QA/QC): | |  | | | | | | | Date | | |  | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Hydraulic Report Checklist** | | | |
|  | | | |
| The District or Consultant should complete the following checklist before submitting the Hydraulic Report for approval. | | | |
|  | | | |
| 1. |  | Title Page | |
|  |  |  | |
| 2. |  | Table of Contents | |
|  |  |  | |
| 3. |  | Narrative - (as outlined in Section 2-601.01 Item #3) | |
|  |  |  | |
| 4. |  | Waterway Information Table (WIT) - (as outlined in Section 2-601.01 Item #4) | |
|  |  |  | |
| 5. |  | Hydraulic Report Data Sheets | |
|  |  |  | |
| 6. |  | Location Map - should show the subject structure along with nearby location defining landmarks (cities, roads, highways, nearby structures over same stream, etc.) | |
|  |  |  | |
| 7. |  | USGS Hydrologic Atlas (historical data available on selected streams- District 1 only) | |
|  |  |  | |
| 8. |  | Photographs - (Minimum: U/S & D/S structure faces, U/S & D/S channel, U/S & D/S roadway across structure) | |
|  |  |  | |
| 9. |  | Hydrology (map, calculations and related exhibits) | |
|  |  |  | |
| 10. |  | Streambed Profile | |
|  |  |  | |
| 11. |  | Roadway Profile (existing and proposed) | |
|  |  |  | |
| 12. |  | Cross Section Plots - with plan layout preferably overlayed upon an aerial photo with the contours | |
|  |  |  | |
| 13. |  | Bridge Opening Plots | |
|  |  |  | |
| 14. |  | Natural Condition Analysis | When HEC-RAS modeling is being used, ALL  Plans (Natural, Existing, & Proposed) shall be  included in ONE Project File. |
|  |  |  |  |
| 15. |  | Existing Condition Analysis |  |
|  |  |  |  |
| 16. |  | Proposed Condition Analysis |  |
|  |  |  | |
| 17. |  | Scour Analysis – Existing and Proposed Conditions | |
|  |  |  | |
| 18. |  | Compensatory Storage Calculations (if required- District 1 only. Include permit summary form  and related attachments. ) | |
|  |  |  | |
| 19. |  | Survey Notes (if available, CADD plot of survey points. No Electronic Point Files) | |
|  |  |  | |
| 20. |  | EWSE Data - (per Section 2-402.06) | |
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| 21. |  | Correspondence Notes | |

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| 22. |  | CD with Project Files (Include pdf copy of the Hydraulic Report and working files for the hydrology and hydraulic analyses.) |