BSB RESOURCES

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Presentation Overview

IOWA DOT BRIDGE DESIGN MANUAL

BRIDGE AND CULVERT STANDARDS

WORKING STANDARDS

FREE DESIGN TOOLS

IOWA DOT BRIDGE DESIGN MANUAL

- https://iowadot.gov/consultants-contractors/bridges-structures/design-policies/lrfd-design-manual
  - Checklist
  - Deliverables
  - Design Criteria

The BDM shall be used with other Iowa DOT documents and standards including the latest editions of the Bridges and Structures Bureau Standards, the Construction and Materials Bureau Instructional Memoranda, and *Standard Specifications for Highway and Bridge Construction*. It also shall be used with the ~~2017~~ 2024 AASHTO *LRFD Bridge Design Specifications*, ~~8th~~ 10th Edition except as noted. The BDM also references the 2002 AASHTO *Standard Specifications for Highway Bridges*, 17th Edition with current errata changes. A list of reference documents and standards along with abbreviations is given in the Introduction section. An additional list is given with each major article or section.

IOWA DOT BRIDGE DESIGN MANUAL

In general, the BDM is intended to define Bureau practice for typical Iowa bridges without restricting innovation for unusual site and design conditions. The words “shall”, “required”, “Bureau policy”, and similar terms indicate mandatory specifications that need to be followed unless exceptions are approved by the supervising Unit Leader. Other terms such as “should”, “prefer”, and “recommended” indicate general guidance subject to engineering judgment of the designer. Interpretations of the supervising Unit Leader, the Chief Structural Engineer, the Bridge Project Development Engineer, and the Bridge Engineer supersede policies in this manual.

The entire manual is generally scheduled to be updated twice a year on January 1 and July 1 however these release dates can change, and interim releases may also occur on occasion. Only changes to the previous release will be shown.

Standard CADD notes are provided in Section 13 at the end of the manual.

Users are invited to bring errors and omissions to the attention of the Methods Unit of the Bridges and Structures Bureau.

- Technical and editorial issues: Logan Grothus, 515-239-1905, Logan.Grothus@iowadot.us
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- CADD issues: Brett Kloss, 515-233-7924, Brett.Kloss@iowadot.us

BRIDGE AND CULVERT STANDARDS

- Bridge Standards
  - PPCB H-Standards
  - CCS J-Standards – Recently Updated
- Culvert Standards
  - Pre-Cast and CIP Standards
  - Flume and Extension Standards
- County Standards
  - 24’ and 30’ Roadway Widths
  - Box-Beam
  - PPCB
  - Single Span Slab

WORKING STANDARDS

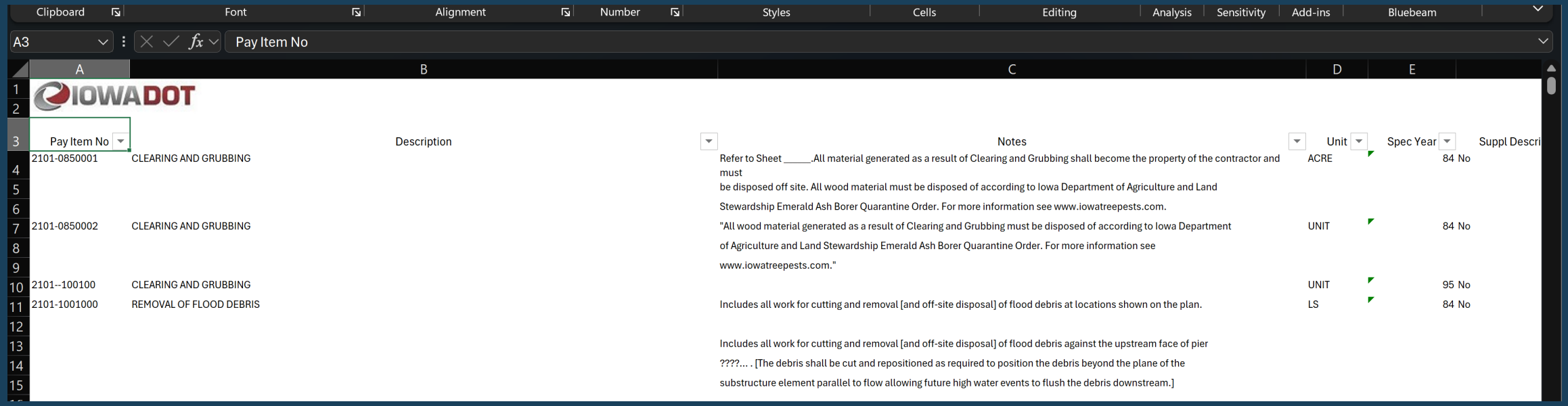
Working standards are unsigned standards provided by the methods office for various bridges and their components. These are not "out of the box" ready, and need more extensive work to be incorporated into a plan for letting.

FREE DESIGN TOOLS

- https://iowadot.gov/consultants-contractors/bridges-structures/automation-tools
  - Bid Items
  - Preliminary Design Software
  - Final Design Software
  - CONNECT Applications

BID ITEMS

- List of all bid items, and their standard notes in an excel spreadsheet.



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A3 | Pay Item No

IOWADOT

Pay Item No	Description	Notes	Unit	Spec Year	Suppl Descri
2101-0850001	CLEARING AND GRUBBING	Refer to Sheet _____.All material generated as a result of Clearing and Grubbing shall become the property of the contractor and must be disposed off site. All wood material must be disposed of according to Iowa Department of Agriculture and Land Stewardship Emerald Ash Borer Quarantine Order. For more information see www.iowatreepests.com.	ACRE	84 No	
2101-0850002	CLEARING AND GRUBBING	"All wood material generated as a result of Clearing and Grubbing must be disposed of according to Iowa Department of Agriculture and Land Stewardship Emerald Ash Borer Quarantine Order. For more information see www.iowatreepests.com."	UNIT	84 No	
2101--100100	CLEARING AND GRUBBING		UNIT	95 No	
2101-1001000	REMOVAL OF FLOOD DEBRIS	Includes all work for cutting and removal [and off-site disposal] of flood debris at locations shown on the plan.	LS	84 No	
		Includes all work for cutting and removal [and off-site disposal] of flood debris against the upstream face of pier ????... . [The debris shall be cut and repositioned as required to position the debris beyond the plane of the substructure element parallel to flow allowing future high water events to flush the debris downstream.]			

PRELIMINARY DESIGN SOFTWARE

- Riverine Infrastructure Database
- Iowa DOT Annual Exceedance-Probability Discharge Spreadsheets
- Iowa DOT Bridge Backwater Program
- Iowa DOT Culvert Program 4.0

FINAL DESIGN SOFTWARE

- Iowa DOT Bridge Tools
  - In-House Excel Add-In
  - Staking Coordinates
  - Bid Items
  - Future functionality
- Design Spreadsheets
- Pier Examples – RC Pier (Now LEAP Bridge)
- CIP Box Culvert Program
- Misc.

CONNECT APPLICATIONS

- The Bridge Bureau CONNECT Documentation webpage, https://iowadot.gov/consultants-contractors/bridges-structures/automation-tools/connect-applications , provides ProjectWise (PW) and CADD guidance for workflows using Bentley Systems MicroStation CONNECT Edition software (*prior to this version it was MicroStation V8i*). The Bridge Bureau uses several MicroStation software products, OpenBridge Designer (OBD), OpenBridge Modeler (OBM), OpenRoads Designer (ORD) and ProStructures (PS). The "Seed Files" (*CONNECT Bridge Seed Files*) document, under "Workspace", on this webpage helps to outline what MicroStation program is used depending on project workflow type.

OTHER RESOURCES

- SIIMS
- Research Information
- Workshops

QUESTIONS?