MINNESOTA DEPARTMENT OF TRANSPORTATION	TRANSMITTAL LETTER NO. (08-01)
<b>DEVELOPED BY:</b> Design Standards	MANUAL: Road Design Manual (English)
<b>ISSUED BY:</b> Design Services Section	<b>DATED:</b> April 9, 2008
<b>SUBJECT:</b> Chapter 9, Pages 9-0(1) to 9-3(5)	

Sections 9-0, 9-1, 9-2, and 9-3, pages 9-1(1) to 9-3(5), from Chapter 9 of the Mn/DOT Road Design Manual have been revised to show current Mn/DOT policy regarding bridges and large hydraulic structures. This revised version and has been converted to dual units. Substantial changes have been made to bridge and large hydraulic structures design process.

A list of major changes made to the chapter is also attached.

## **INSTRUCTIONS:**

- 1. Record the transmittal letter number, date and subject on the transmittal record sheet located in the front of the manual.
- 2. Remove from the ENGLISH manual: pages 9-0(1-2), 9-1(1), 9-2(1-19), and 9-3(1-3).
- 3. Insert in the ENGLISH manual: pages 9-0(1-2); page 9-1(1), back blank; pages 9-2(1-10); page 9-2(11), back blank; pages 9-3(1-4); page 9-3(5), back blank; all dated April, 2008.
- 4. Any technical questions regarding this transmittal should be directed to Michael Elle, Design Standards, at (651) 366-4622.
- 5. Any questions concerning missing manual sheets or extra transmittal letters should be directed to: Map & Manual Sales, Room 110 - M.S. 260, Transportation Building, 395 John Ireland Boulevard, St. Paul, MN 55155, (651) 366-3017. Please furnish, in writing, any address changes to: Mail Room G-18 Transportation Building, 395 John Ireland Blvd., St. Paul, MN 55155. Any questions concerning mailing of this material should be directed to the Mail Room G-18 (651) 366-3132.

The last Transmittal Letter of 2007 was (07-01).

Michael Elle, P.E. Design Standards Engineer

## List of Major Changes To RDM CH. 9-1 dated September, 2001; 9-2, dated November, 2003 and September, 2001; and 9-3, dated September 2001

- 1. Header Deleted word (English) where applicable, added word Mn/DOT, and changed all dates to April, 2008.
- 2. Measurements Revised all from English to dual units: metric (English).
- 3. All transfers to and from metric units conducted as hard transfers.
- 4. All sections Deleted name (Office of Bridges and Structures) and replaced by (Bridge Office).
- 5. All sections References to RDM Sections replaced by references to RDM Chapters.
- 6. All sections References to LRFD Bridge Design Manual Chapters replaced by references to MN/DOT LRFD Bridge Design Manual sections.
- 7. 9-1.0. General. Updated definitions of the Bridge Office services and requirements associated with road design projects involving bridges, retaining walls, large drainage structures, and other structures referred to the Bridge Office for design. Please review this version alongside the published version dated September 2001, and November 2003 to understand the significant differences.
- 8. 9-2.0. Bridges. This is a new text. The content of the RDM 9-2.0 was reorganized into a more logical format along with extensive changes referencing the new Mn/DOT LRFD Bridge Design Manual. Please review this version alongside the published version dated September 2003 and November 2003 to understand the significant differences. All figures and tables in Section 9-2 are removed (except Table 9-2.03A BRIDGE SHOULDER WIDTHS).
- 9-2.01. Bridge Design Process. This is new text that includes: 9-2.01.01 General; 9-2.01.02 Bridge Standards; 9-2.01.03 Preliminary Bridge Plan; 9-2.01.04 Final Bridge Plan; 9-2.01.05 Visual Quality; and 9-2.01.06 Cost Estimating.
- 10. 9-2.02 Bridge Geometrics Alignment and Grades. This new text includes: 9-2.02.0 Alignment that replaces old 9-2.01.01 Alignment at Bridges in the current 2003 version; and 9-2.02.02 Grades that replaces old 9-2.01.02 Grade Line at Bridges in the current 2003 version.
- 9-2.03 Bridge Geometrics Deck Sections. This section includes edited descriptions of Mainline Bridges, Ramp Bridges, Local Road Bridges, and Railroad Bridges. Each description is subdivided into Deck Section and Underpass Cross Section.
- 12. 9-2-03.01 Mainline Bridges. This is an edited version of former 9-2.01.
- 13. 9-2.03.01.01 Mainline Bridge Deck Section. This is an edited version of former 9-2.01.03 Superstructure Cross Section. Old Paragraph # 3 Structural Depth has been removed.
- 14. 9-2.03.01.02 Mainline Bridge Underpass Section. This is an edited version of former 9-2.01.04 Under crossing Highway Cross Section. New Paragraph # 4 Pier Protection has been added.
- 15. 9-2.03.02 Ramp Bridges. This is an edited version of former 9-2.02 Ramp Bridges and Underpasses.
- 16. 9-2.03.02.01 Ramp Bridge Deck Section. This is an edited version of former 9-2.02.01 Ramp Bridge Cross Section. Old Paragraph # 3 Superstructure Thickness has been removed.
- 17. 9-2.03.02.02 Rump Bridge Underpass Cross Section. This is an updated version of former 9-2.02.02 Ramp Underpass Cross Section.
- 18. 9-2.03.03 Local Road Bridges. This is an updated version of former 9-2.03 Local Road Bridges and Underpasses.
- 19. 9-2.03.03.01 Local Road Bridge Deck Section. This is an edited version of former 9-2.03.01 Bridge Cross Section. Old paragraph # 3 Superstructure Thickness has been removed.

- 20. 9-2.03.03.02 Local Road Bridge Underpass Cross Section. This is an updated version former 9-2.03.02 Underpass Cross Section.
- 21. 9-2.03.04 Railroad Bridges. This is an updated version of former 9-2.05 Railroad Bridges and Underpasses including former 9-2.05.01 General.
- 22. 9-2.03.04.01 Railroad Bridge Deck Section. This is a new section describing basics for deck-girder structural depth calculations.
- 23. 9-2.03.04.02 Railroad Bridge Underpass Cross Section. This is an updated version of former 9-2.05.02 Railroad Underpass Cross Section.
- 24. 9-2.04. Water Crossing. This Section contains edited 9-2.04.01 Navigable Waterways and 9-2.04.02 Non-Navigable waterways.
- 25. 9-3.0. Large Hydraulic Structures. The second paragraph is an updated version of a first paragraph from former 9-3.02 Structures. The third paragraph is new, listing the large hydraulic structures classifications and designers' considerations.
- 26. 9-3.01. Design Responsibility. A list of the large hydraulic structures design coordination recommendations has been added. Paragraph # 3 in that list is an edited second paragraph from the former 9-3.0 Large Hydraulic Structures.
- 27. 9-3.02. Structures. This is a one sentence Section. The first paragraph from the old 9-3.02 Structures has been removed, edited and placed as second paragraph into a new 9-3.0 Large Hydraulic Structures.
- 28. 9-3.02-01. Box Culverts. Added reference to the Culvert Request Form and Figure 9-3.02A depicting the Culvert Sample Request Form. Reorganized list of some limitations on the use of precast concrete box culverts. Removed references to the required design live load and to AASHTO and Mn/DOT regulatory documents associated with box culvert design criteria.
- 29. 9-3.02.02 Large Circular Pipe. This is a former 9-3.02.02 Circular Pipe with minor editorial changes. Removed - reference to the AISI Handbook of Steel Drainage and Highway Construction Products.
- 30. 9-3.02.03 Pipe Arches. No change.
- 31. 9-3.02.04 Mn/DOT Precast Concrete Arch. Minor editorial changes.
- 32. 9-3.02.05 Three Sided Bridge Structures. This is a new section describing the use of the Three-Sided Bridge Structures.
- 33. 9-3.02.06 Metal Long Span Structures. This is a former 9-3.02.05 Long Span Structures. Removed references to AASHTO Standard Specifications for Highway Bridges.
- 34. 9-3.03 End Treatments. Removed references to AASHTO Roadside Design Guide.
- 35. 9-3.04 Energy Dissipaters. Minor editorial changes.

## END OF LIST

April 16, 2008.