

DATE: July 30, 2019  
TO: Bridge Manual Users  
FROM: DTSD – Bureau of Structures  
SUBJECT: **July 2019 Bridge Manual Update**

The Bridge Manual revisions to text and standards are now complete and posted online for this six month cycle. Please see the attached sheets for a list, with brief explanation, of the Text and Standards that were revised.

Of particular interest in this edition:

- **Chapter 6: Updated Consultant QA/QC requirements**
- **Chapter 6: Benchmark Usage:** Updated guidance based on a renewed interest in providing benchmarks on structures.
- **Chapter 13 and Standard 13.03 & New Standard 13.09:** Added pile encased pier guidance for selecting appropriate bid items and plan notes.
- **Chapter 17 and Standard 24.11:** Changed deck longitudinal joint requirement to 120 ft (was 90 ft). Optional joint to be detailed from 90-120 ft.
- **Chapter 19:** Updated prestressed girder span tables to reflect new shear design procedure.
- **Chapter 30: New WisDOT Policy Item** not allowing noise walls on bridges for most situations.
- **Standard 28.02:** New ‘Designer Notes’ regarding joint replacements for rehabilitation projects with regards to skew.
- **Standards 29.01-29.03:** Revised plan note to not allow alternate drain brackets (due to problems seen with some of the alternates).
- **Standard 40.34:** Added ‘Notes’, ‘Designer Notes’, and Bid Items for polyester polymer concrete overlays. Updated SPV and changed the bid item unit from CY to SY.

Most other changes are fairly minor. Please use the example calculations with care (follow along in AASHTO).

A vertical black bar in the left margin notes all text changes.

The user's feedback regarding the Bridge Manual is important to us as that is where we get many ideas for corrections, clarification and new ideas for enhancement.

## July 2019 Bridge Manual Text Update Summary

<u>Chapter</u>	<u>Page Number(s)</u>	<u>Change</u>
4	4,8,12	Updated name of Manuals referenced to match their current names
5	14-16	Updated structure costs to include 2018
6	12	Replaced "Bench Mark Cap" with "Benchmark"
	14-15	Added guidance pertaining to Ratings information when LFR is used
	25	Removed benchmark data table requirement
	26	Removed expansion device payment note
	32	Added Name plate location and Benchmark location items.
	33	Updated name plate and benchmark guidance. Current practice is to set benchmarks on structures, when supplied by the department.
	46	Updated information regarding consultant QA/QC plans
8	13-14	Provided additional guidance for hydraulic modeling
13	4,7-8, 51	Updated pile encased pier construction guidance
17	13	Updated Fatigue I load factor from 1.50 to 1.75
	72	Revised longit. joint width spacing to 120 ft. Optional from 90-120 ft.
19	28-29	Corrected the COT $\theta$ calculations and re-formatted section
	43-44	Updated maximum span lengths based on updated shear checks
23	20	Updated name of AASHTO Publication for Rating of bridges
24	11,27	Updated name and publication dates for Referenced Documents
	38	Corrected typing error in referenced Section number
27	5	Added full name of AASHTO Publication
30	12	New WisDOT Policy Item not allowing noise walls on bridges.
32	6	Added a note to contact BOS ancillary engineer for high mast lighting questions
41	21	Updated date and edition of AASHTO Publication
42	11	Corrected typing error
	17,20	Updated date of AASHTO Publication

## **July 2019 Standard Details Update Summary**

### **Chapter 4**

- Std 4.01 ■ No revisions.
- Std 4.02 ■ No revisions.
- Std 4.03 ■ No revisions.
- Std 4.04 ■ No revisions.
- Std 4.05 ■ No revisions.

### **Chapter 7**

- Std 7.01 ■ No revisions.
- Std 7.02 ■ No revisions.
- Std 7.03 ■ No revisions.
- Std 7.04 ■ No revisions.
- Std 7.05 ■ No revisions.
- Std 7.06 ■ No revisions.
- Std 7.07 ■ No revisions.

### **Chapter 9**

- Std 9.01 ■ No revisions.
- Std 9.02 ■ No revisions.
- Std 9.03 ■ No revisions.

### **Chapter 11**

- Std 11.01 ■ No revisions.

### **Chapter 12**

- Std 12.01 ■ No revisions.
- Std 12.02 ■ No revisions.
- Std 12.03 ■ No revisions.
- Std 12.04 ■ No revisions.
- Std 12.07 ■ No revisions.
- Std 12.08 ■ Updated tie bars with a 90 degree hook and a 180 degree hook
- Std 12.09 ■ No revisions.
- Std 12.10 ■ No revisions.
- Std 12.11 ■ No revisions.
- Std 12.12 ■ Updated approach FDM reference from 14-10-15 to 14-10-25
- Std 12.13 ■ No revisions.

### **Chapter 13**

- Std 13.01 ■ No revisions.
- Std 13.02 ■ No revisions.
- Std 13.03 ■ Updated notes and designer notes for additional cofferdam guidance
  - Updated tie bars with a 90 degree hook and a 180 degree hook
- Std 13.04 ■ No revisions.
- Std 13.05 ■ No revisions.
- Std 13.06 ■ No revisions.
- Std 13.07 ■ No revisions.
- Std 13.08 ■ No revisions.
- NEW** Std 13.09 ■ Pile Encased Pier (Types)
- Std 13.10 ■ No revisions.
- Std 13.11 ■ No revisions.

#### **Chapter 14**

- Std 14.02 ■ No revisions.
- Std 14.03 ■ No revisions.
- Std 14.04 ■ No revisions.
- Std 14.05 ■ No revisions.
- Std 14.11 ■ No revisions.
- Std 14.12 ■ No revisions.
- Std 14.13 ■ No revisions.

#### **Chapter 15**

- Std 15.01 ■ No revisions.
- Std 15.02 ■ No revisions.
- Std 15.03 ■ No revisions.

#### **Chapter 17**

- Std 17.01 ■ No revisions.
- Std 17.02 ■ No revisions.
- Std 17.03 ■ Added a note to clarify flashing height required for variable slab depth

#### **Chapter 18**

- Std 18.01 ■ No revisions.
- Std 18.02 ■ No revisions.

#### **Chapter 19**

- Std 19.01 ■ Changed T/FLG note from "Bend to be 15 bar diameters" to "Std. Hooks at Ends"
- Std 19.02 ■ No revisions.
- Std 19.03 ■ Changed T/FLG note from "Bend to be 15 bar diameters" to "Std. Hooks at Ends"
- Std 19.04 ■ No revisions.
- Std 19.11 ■ No revisions.
- Std 19.12 ■ No revisions.
- Std 19.13 ■ No revisions.
- Std 19.14 ■ No revisions.
- Std 19.15 ■ No revisions.
- Std 19.16 ■ No revisions.
- Std 19.17 ■ No revisions.
- Std 19.18 ■ No revisions.
- Std 19.19 ■ No revisions.
- Std 19.20 ■ No revisions.
- Std 19.31 ■ No revisions.
- Std 19.32 ■ No revisions.
- Std 19.33 ■ No revisions.
- Std 19.34 ■ No revisions.
- Std 19.35 ■ No revisions.
- Std 19.36 ■ Updated diaphragm connection notes for consistency.
- Std 19.37 ■ No revisions.
- Std 19.38 ■ Put correct number of plate washers in "Detail B".  
■ Updated diaphragm connection notes for consistency.
- Std 19.50 ■ No revisions.
- Std 19.51 ■ No revisions.
- Std 19.52 ■ No revisions.
- Std 19.53 ■ No revisions.

- Std 19.54 ■ No revisions.
- Std 19.55 ■ No revisions.
- Std 19.56 ■ No revisions.

### **Chapter 23**

- Std 23.01 ■ No revisions.
- Std 23.02 ■ No revisions.
- Std 23.03 ■ No revisions.

### **Chapter 24**

- Std 24.02 ■ No revisions.
- Std 24.03 ■ No revisions.
- Std 24.04 ■ No revisions.
- Std 24.06 ■ No revisions.
- Std 24.08 ■ No revisions.
- Std 24.09 ■ No revisions.
- Std 24.10 ■ No revisions.
- Std 24.11 ■ Revised longit. joint spacing to 120 ft. Optional joint from 90-120 ft.
- Std 24.12 ■ No revisions.

### **Chapter 27**

- Std 27.02 ■ No revisions.
- Std 27.05 ■ No revisions.
- Std 27.06 ■ No revisions.
- Std 27.07 ■ No revisions.
- Std 27.08 ■ No revisions.
- Std 27.09 ■ No revisions.
- Std 27.10 ■ No revisions.

### **Chapter 28**

- Std 28.01 ■ Updated "Expansion Device (Structure)" note from LS to LF payment
- Std 28.02 ■ Added 'Designer Notes' regarding joint replacement details
- Std 28.03 ■ Updated "Expansion Modular Device (Structure)" note from LS to LF payment
- Std 28.04 ■ No revisions.
- Std 28.05 ■ No revisions.
- Std 28.06 ■ No revisions.
- Std 28.07 ■ No revisions.
- Std 28.08 ■ No revisions.

### **Chapter 29**

- Std 29.01 ■ Note revised to not allow alternate drain brackets
- Std 29.02 ■ Note revised to not allow alternate drain brackets
- Std 29.03 ■ Note revised to not allow alternate drain brackets

### **Chapter 30**

- Std 30.02 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.04 ■ Added post spacing requirements as previously shown in from Std 30.07
- Std 30.05 ■ Added post spacing requirements as previously shown in from Std 30.07
- Std 30.07 ■ Changed Bar Mark from R501 to S501 in Section C detail
- Std 30.08 ■ No revisions.

- Std 30.09 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.10 ■ Entire standard updated. Limited interior parapet to 42SS.  
■ Updated benchmark note
- Std 30.11 ■ No revisions.
- Std 30.14 ■ Corrected several dimensions due to scaling error
- Std 30.15 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.16 ■ Removed 1 3/4" bolt offset dimension from "Detail At End Post"  
■ Added "(Typ.)" to 1 5/8" bolt offset dimension for "Section Thru Post Web"  
■ Added box around "See Standard 30.02" in "Section A-A"  
■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.17 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.18 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.19 ■ Updated benchmark note
- Std 30.20 ■ Updated benchmark note
- Std 30.21 ■ No revisions.
- Std 30.22 ■ No revisions.
- Std 30.24 ■ No revisions.
- Std 30.25 ■ No revisions.
- Std 30.26 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.27 ■ Removed structure number (B-\_-\_) from railing bid item name.
- Std 30.28 ■ No revisions.
- Std 30.29 ■ No revisions.
- Std 30.30 ■ Updated benchmark note
- Std 30.31 ■ Updated benchmark note
- Std 30.32 ■ Updated benchmark note
- Std 30.33 ■ Updated benchmark note
- Std 30.34 ■ Updated benchmark note
- Std 30.35 ■ Updated benchmark note
- Std 30.36 ■ Updated benchmark note
- Std 30.37 ■ Updated benchmark note

### **Chapter 36**

- Std 36.01 ■ No revisions.
- Std 36.02 ■ No revisions.
- Std 36.03 ■ No revisions.
- Std 36.04 ■ No revisions.
- Std 36.05 ■ No revisions.
- Std 36.06 ■ No revisions.
- Std 36.07 ■ No revisions.
- Std 36.08 ■ No revisions.
- Std 36.10 ■ No revisions.
- Std 36.11 ■ No revisions.
- Std 36.12 ■ No revisions.
- Std 36.13 ■ No revisions.
- Std 36.14 ■ No revisions.
- Std 36.15 ■ No revisions.
- Std 36.16 ■ No revisions.

### **Chapter 37**

- Std 37.01 ■ No revisions.
- Std 37.02 ■ No revisions.

### **Chapter 38**

- Std 38.01 ■ No revisions.

### **Chapter 39**

- Std 39.02 ■ No revisions.
- Std 39.03 ■ No revisions.
- Std 39.09 ■ No revisions.
- Std 39.10 ■ No revisions.
- Std 39.11 ■ No revisions.
- Std 39.12 ■ No revisions.
- Std 39.13 ■ No revisions.

### **Chapter 40**

- Std 40.01 ■ No revisions.
- Std 40.02 ■ No revisions.
- Std 40.03 ■ No revisions.
- Std 40.04 ■ Updated overlay limits for projects with joint repairs
  - Clarified bar placement and bar coating usage (coated or uncoated)
  - Updated "Expansion Device (Structure)" bid item unit from "LS" to "LF"
  - Updated "Total Estimated Quantities"
  - Removed detail "Section Thru Joint Steel Girder Without End Diaphragm"
  - Revised adhesive anchor embedment from 1'-6" to 1'-0"
- Std 40.05 ■ No revisions.
- Std 40.06 ■ Updated Section P-P based on Std. 40.04 updates
- Std 40.07 ■ No revisions.
- Std 40.08 ■ No revisions.
- Std 40.09 ■ No revisions.
- Std 40.10 ■ No revisions.
- Std 40.11 ■ Standard revamped to show exactly what needs to be put on plans regarding bar couplers
- Std 40.12 ■ No revisions.
- Std 40.13 ■ No revisions.
- Std 40.14 ■ No revisions.
- Std 40.15 ■ No revisions.
- Std 40.16 ■ No revisions.
- Std 40.17 ■ No revisions.
- Std 40.18 ■ No revisions.
- Std 40.19 ■ No revisions.
- Std 40.20 ■ No revisions.
- Std 40.21 ■ No revisions.
- Std 40.22 ■ No revisions.
- Std 40.23 ■ No revisions.
- Std 40.24 ■ No revisions.
- Std 40.25 ■ No revisions.
- Std 40.26 ■ No revisions.
- Std 40.27 ■ No revisions.
- Std 40.28 ■ No revisions.
- Std 40.31 ■ Updated WIS-SPV rating shown on plans
- Std 40.32 ■ Updated WIS-SPV rating shown on plans
- Std 40.33 ■ Updated WIS-SPV rating shown on plans
- Std 40.34 ■ Added Notes, Designers Notes, and Bid Items.
  - Updated PPC overlay special provision

- Std 40.40 ■ Updated WIS-SPV rating shown on plans
- Std 40.40 ■ No revisions.
- Std 40.41 ■ No revisions.