WisDOT Bridge Manual

January 2026 Updates

February 17th, 2026

Agenda

- Resources
- Updates (Chapters, Standards, Inserts, and Blocks)
- Questions and Feedback

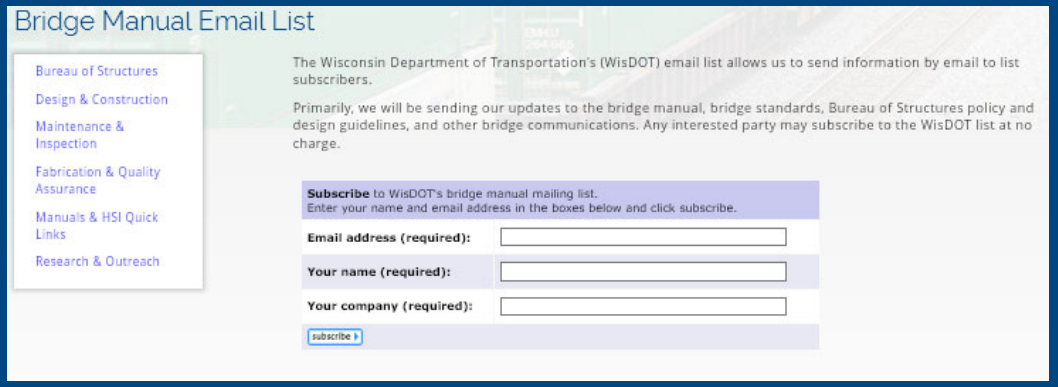
Housekeeping

- All participants are muted
- A handout of this webinar is posted on our website (See Update Archives)
- If you have a question, please use the chat feature to submit your question or raise your hand.
- Follow-up questions, please send to James.luebke@dot.wi.gov

Resources

https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/bm-mail-list.aspx

- To be added to the email distribution list:

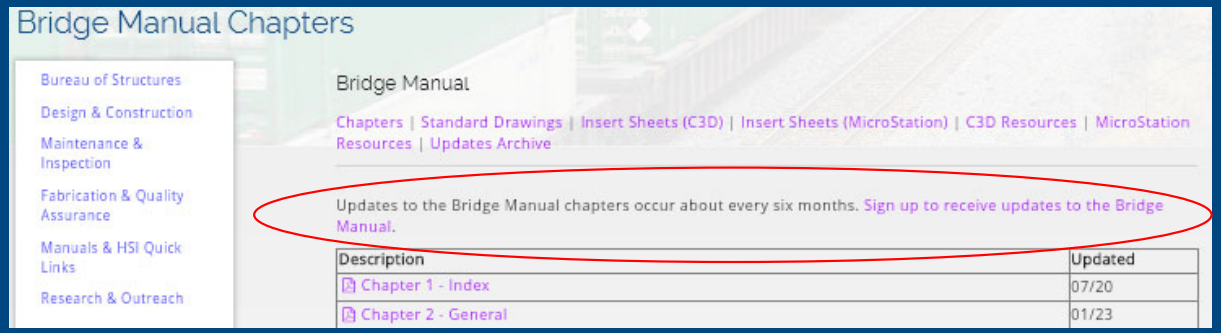


- To be removed from the email distribution list:
  - Send an email to James.Luebke@dot.wi.gov

Resources

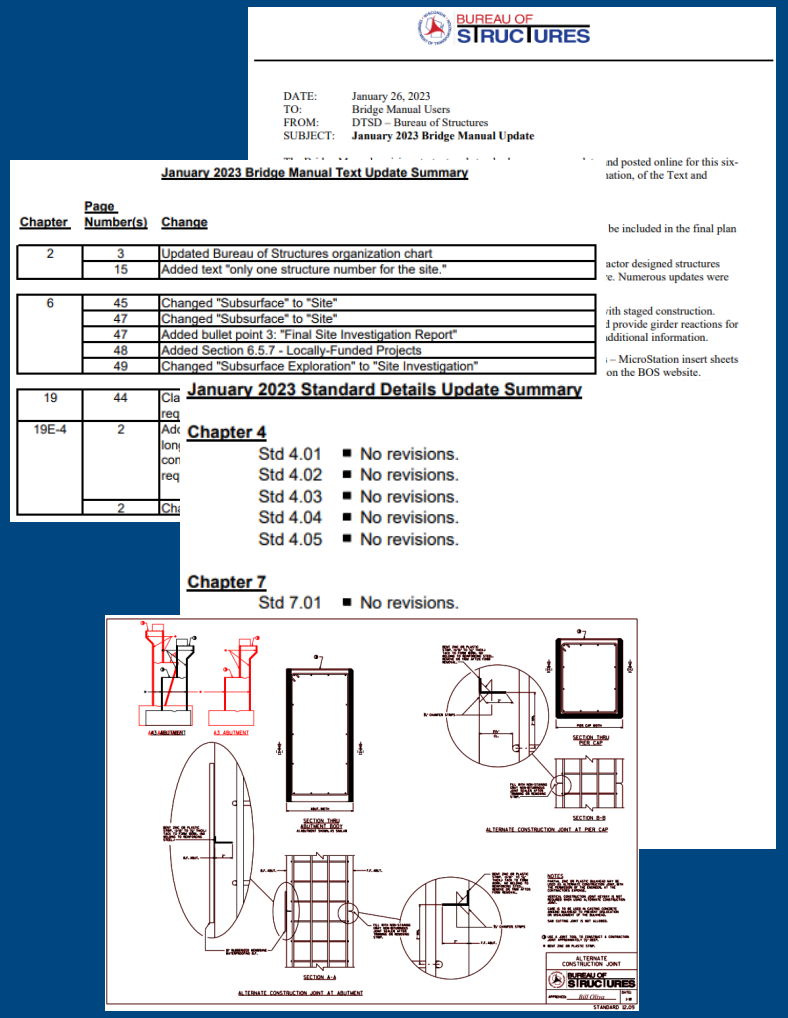
https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/bridge-manual.aspx

Or web search “WisDOT Bridge Manual”



Resources

- Update Archives
  - Update Memo
  - Text Update Summary
  - Standard Details Update Summary
  - Insert Sheet Update Summary
  - Standards Tracker
  - Update Presentation Slides
  - Block Update Summary



BUREAU OF STRUCTURES

DATE: January 26, 2023
TO: Bridge Manual Users
FROM: DTSD – Bureau of Structures
SUBJECT: **January 2023 Bridge Manual Update**

January 2023 Bridge Manual Text Update Summary

Chapter	Page Number(s)	Change
2	3	Updated Bureau of Structures organization chart
	15	Added text "only one structure number for the site."
6	45	Changed "Subsurface" to "Site"
	47	Changed "Subsurface" to "Site"
	47	Added bullet point 3: "Final Site Investigation Report"
	48	Added Section 6.5.7 - Locally-Funded Projects
	49	Changed "Subsurface Exploration" to "Site Investigation"
19	44	Cla req
19E-4	2	Ad lon con req
	2	Ch

January 2023 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.

Chapter Update

- General – AASHTO LRFD Bridge Design Specifications – 10th
  - Chapter 14
  - Chapter 27
  - Chapter 40

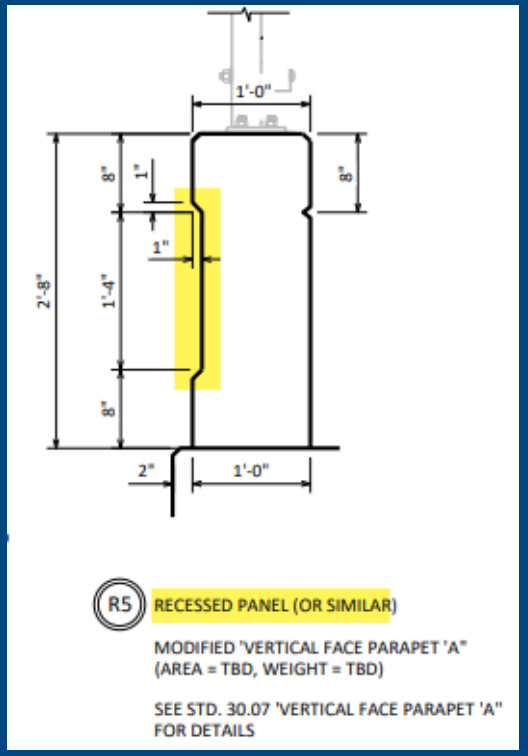
Chapter Update

- Chapter 2 – Temporary Structures
  - Structures Inspection Manual 1.3.2 (Initial Inspection)
  - Inspected and inventoried at 24 months per the NBIS
  - Upon removal of the temporary bridge, the bridge ID should be marked as REPLACED in HSIS

> - Assign a bridge number to any temporary bridge open to highway traffic more than 24 months.

Chapter Update

- Chapter 4 – Non-CSD Rustications
  - Standards 4.02 - 4.05 provide details for acceptable non-CSD funded aesthetic concepts.
  - Type III: …along with standard parapets (with or without recessed panels)



Std. 4.04

Chapter Update

- Chapter 27 Example – Tapered Plates

$$\theta_{SX} := \theta_{GL} + \theta_{RC} \qquad \text{(Check if } \theta_{SX} \leq 0.01 \text{ radians)}$$

$$\theta_{GL} := \operatorname{atan}\left(S_{GL}\right)$$

$$\theta_{RC} := \operatorname{atan}\left(S_{RC}\right)$$

- Grade Line Value

$$S_{GL} := \frac{\left|EL_1 - EL_2\right|}{L_{span}}$$

  - Positive (always a thicker plate)

- Residual Camber Value

$$S_{RC} := \frac{0.4 \cdot \Delta_{RC}}{0.1 \cdot L_{span} \cdot 12}$$

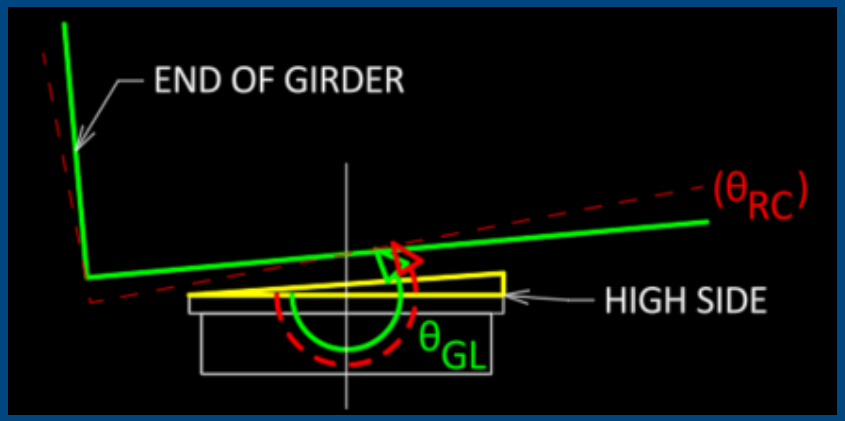
  - Positive or Negative (based on orientation)

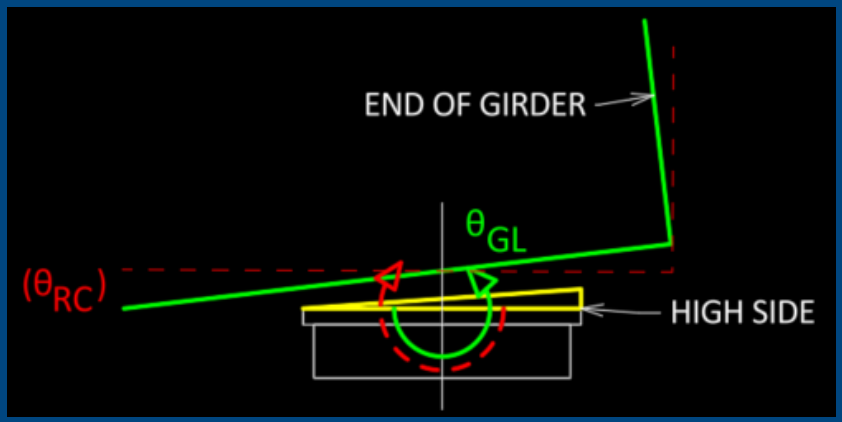
TAPER THE TOP PLATE IF THE GIRDER ANGLE RELATIVE TO HORIZONTAL IS GREATER THAN 0.01 RADIANS OR IF THIS ANGLE MULTIPLIED BY THE TOP PLATE LENGTH IS 1/8" OR MORE. THIS ANGLE IS BASED ON:
- SLOPE OF GIRDER
- SLOPE DUE TO RESIDUAL CAMBER = 4(RC)/L, WHERE:
  RC = RESIDUAL CAMBER (INCHES)
  L = GIRDER LENGTH (INCHES)

Std. 27.07

Chapter Update

- Chapter 27 Example – Tapered Plates





Note: The slope of girder is positive (+) when measured from the assumed "minimum thickness" side of the plate. Based on this orientation, the residual camber will either be positive (+) or negative (-).

Chapter Update

- Chapter 27 Example – Initial Compressive Deflection Check

Initial compressive deflection of a single internal layer:

$\varepsilon_{int} \cdot h_{ri} < 0.09 \cdot h_{ri}$ **LRFD [14.7.6.3.3]**

$\varepsilon_{int} = 0.029$

ε_{int} = "< 0.09, OK"

July 2025

Initial compressive deflection of a single internal layer due to total load:

$\varepsilon_{int} \cdot h_{ri} < 0.09 \cdot h_{ri}$ **LRFD [14.7.6.3.3]**

$\varepsilon_{int} \cdot h_{ri} = 0.015$ in

$0.09 \cdot h_{ri} = 0.045$ in

check = "OK"

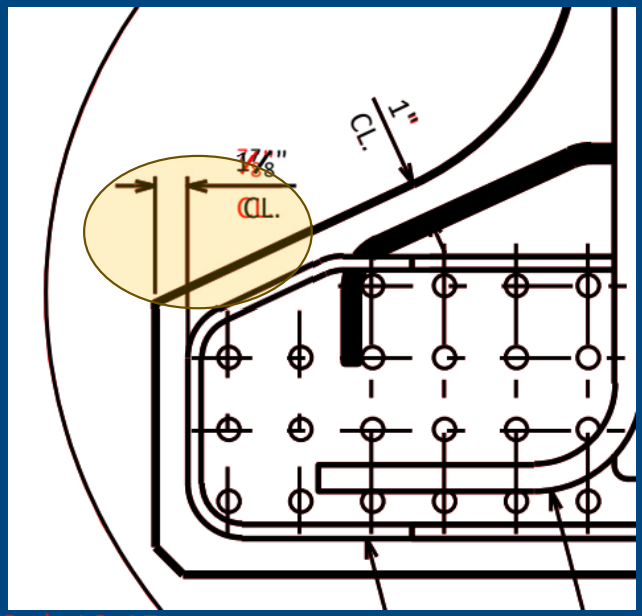
January 2026

Chapter Update

- Chapter 32.7 – High Mast Lighting *New*
  - Design:
    - Foundations – By Department (In-house or Consultant)
      - See Chapter 39.5
    - Anchor rods and Poles – By Contractor
      - See Std. Spec 532
    - Support 6 luminaires, regardless of the final lighting configuration.

Standard Update

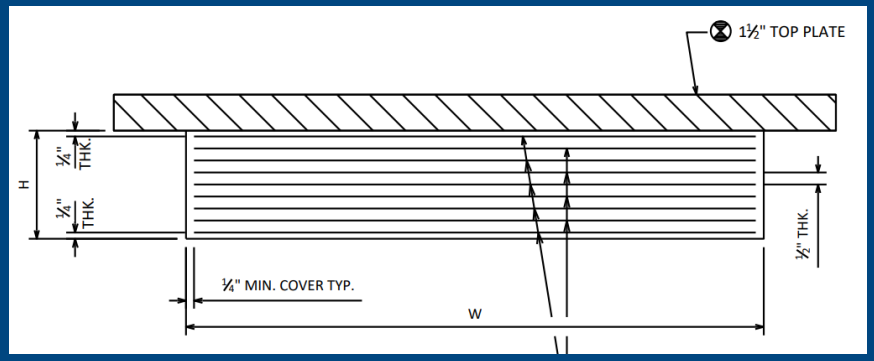
- Std. 19.15 – Pile Details
  - 1 7/8” ➔ 7/8” Clear Cover



Std. 19.15

Standard Update

- Std. 27.07
  - Updated "Designer Note" guidance for tapered top plates.



Std. 27.07

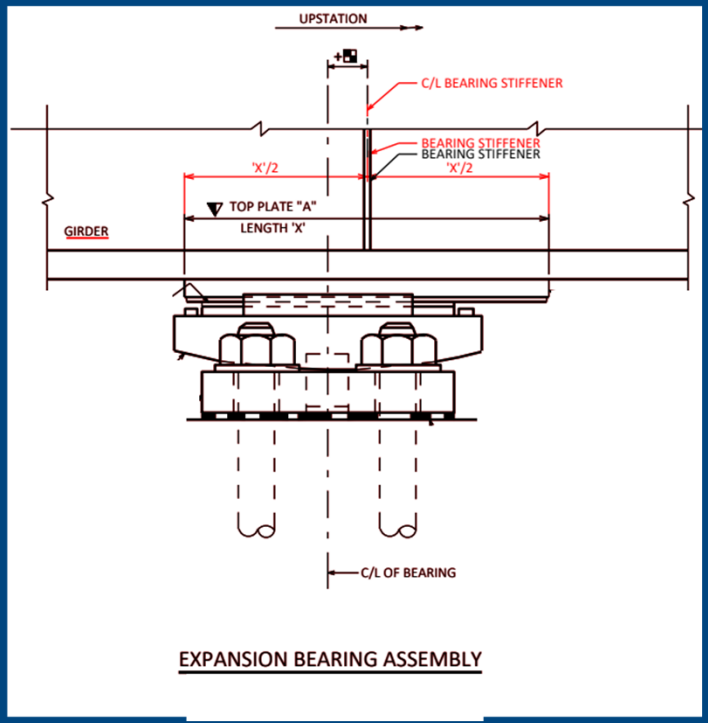
⊗ TAPER THE TOP PLATE IF THE GIRDER ANGLE RELATIVE TO HORIZONTAL IS GREATER THAN 0.01 RADIANS OR IF THIS ANGLE MULTIPLIED BY THE TOP PLATE LENGTH IS 1/8" OR MORE. THIS ANGLE IS BASED ON:

- SLOPE OF GIRDER
- SLOPE DUE TO RESIDUAL CAMBER = 4(RC)/L, WHERE:
  RC = RESIDUAL CAMBER (INCHES)
  L = GIRDER LENGTH (INCHES)

Std. 27.07

Standard Update

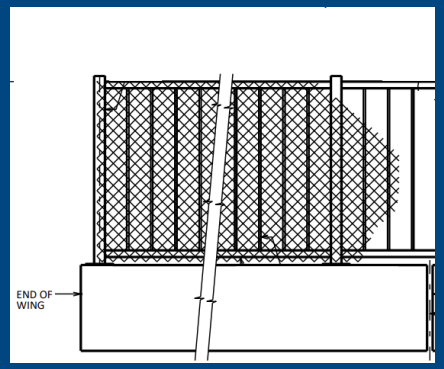
- Std. 27.10
  - Added 'X'/2 dimensions to "Expansion Bearing Assembly" detail for bearing stiffener.



Std. 27.10

Standard Update

- Std. 30.15 - Post Orientation (Longitudinally)
  - "Normal to Grade"
    - Railing Posts along PGL (90-deg to base plate long.)
  - "Vertical"
    - Fence Posts on Sloped Wall (Angle TBD to base plate long.)



Std. 30.15

- POSTS SHALL BE SET (SELECT AS REQ'D: NORMAL TO GRADE OR VERTICAL) IN THE LONGITUDINAL DIRECTION.

- ORIENTATION OF POSTS IN THE LONGITUDINAL DIRECTION ARE TYPICALLY SET NORMAL TO GRADE WHEN FOLLOWING A PROFILE GRADE LINE AND VERTICAL ON STEEP SLOPES (E.G., RETAINING WALL WITH 3:1 SLOPE). CONSIDER AESTHETICS AND CONTRACTIBILITY WHEN DETERMINING POST ORIENTATION AND PROVIDE DETAILS FOR CLARITY.

Standard Update

- Std. 30.16 – Anchor Bolt Lengths
  - July 2025: Standard - Generic Bolt Length Note
  - January 2026: Contract Plans - Specify Actual Bolt Length

~~(3) ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)~~

July 2025

10.75" ≤ "T" ≤ 16"	(3A)	ASTM A449 - 1⅛" DIA. X 10¾" LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
"T" > 16"	(3B)	ASTM A449 - 1⅛" DIA. X 1'-3" LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
WINGS	(3C)	ASTM A449 - 1⅛" DIA. X 1'-9" LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)

DESIGNER NOTES

PLANS SHALL SPECIFY ANCHOR BOLT LENGTHS AT EACH LOCATION.

Insert Sheet Update

January 2026 Insert Sheet Update Summary

Chapter 19 - Prestressed Concrete

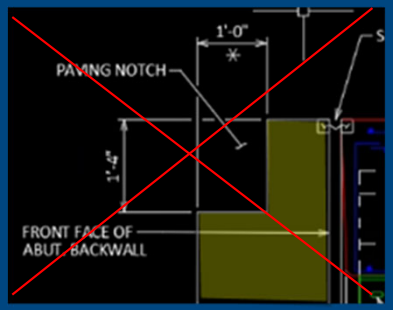
g28.dwg	Adjusted boarder sheet (out of alignment with other blocks) and notes (appeared off the sheet)
g36det.dwg	Updated Expansion Abutment (A3) backwall details
g36Wdet.dwg	Updated Expansion Abutment (A3) backwall details
g45det.dwg	Updated Expansion Abutment (A3) backwall details
g45Wdet.dwg	Updated Expansion Abutment (A3) backwall details
g54det.dwg	Updated Expansion Abutment (A3) backwall details
g54Wdet.dwg	Updated Expansion Abutment (A3) backwall details
g70det.dwg	Updated Expansion Abutment (A3) backwall details
g72Wdet.dwg	Updated Expansion Abutment (A3) backwall details
g82Wdet.dwg	Updated Expansion Abutment (A3) backwall details
gpsbox.dwg	***New*** - Prestressed Box Girder Sections
gpsbox_det1.dwg	***New*** - Prestressed Box Girder Details1
gpsbox_det2.dwg	***New*** - Prestressed Box Girder Details 2
gpsbox_ppt.dwg	***New*** - Parapet Details for Prestressed Box Girder

Chapter 30 - Railings

pptaelec.dwg	Changed S505 bar length from 6'-8" to 6'-3"
ss32.dwg	Made back of the parapet flush with the edge of approach slab
ss36.dwg	Made back of the parapet flush with the edge of approach slab
ss42.dwg	Made back of the parapet flush with the edge of approach slab
ss56app.dwg	Added edge of deck label
ss56elec.dwg	Changed anchorage embedment from 3'-11" to 4'-1". Changed C/L Bolt Circle dimension from 1'-2" to 1'-1". Changes now agree with Std. 30.21.

Insert Sheet Update

- Updated Several PS Girder Sheets
  - Backwall now matches current A3 Abutment Details

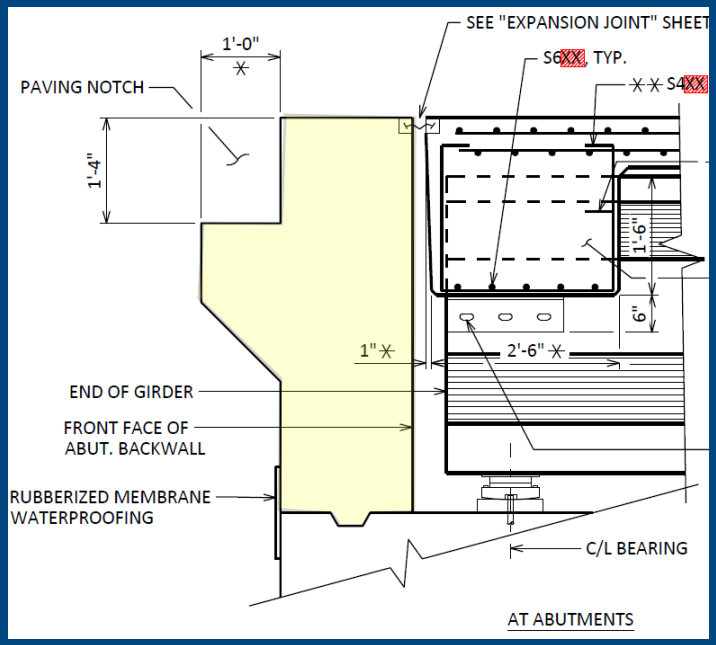


July 2025

OPTIONS

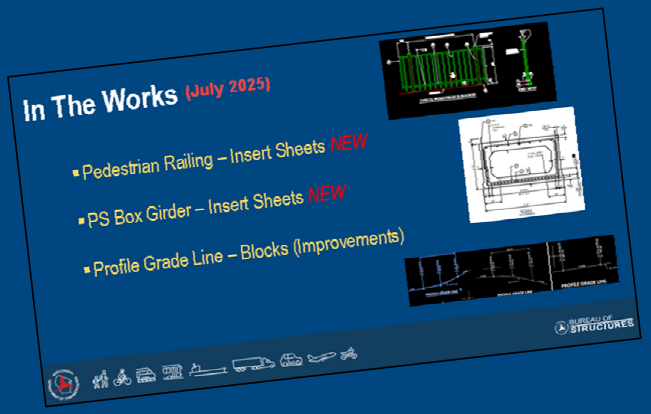
END CONDITION & PAV. NOTCH

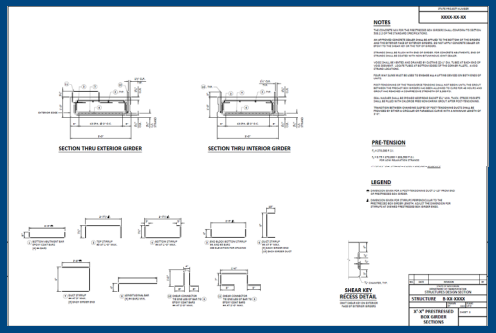
- SEMI-EXP - 8" X 1'-0" PAVING NOTCH
- SEMI-EXP - 1'-0" X 1'-4" PAVING NOTCH
- EXP - ELASTOMERIC - 1-0" X 1'-0" PAVING NOTCH
- EXP - ELASTOMERIC - 1'-0" X 1'-4" PAVING NOTCH
- EXP - STEEL - 1'-0" X 1'-0" PAVING NOTCH
- ✓ EXP - STEEL - 1'-0" X 1'-4" PAVING NOTCH

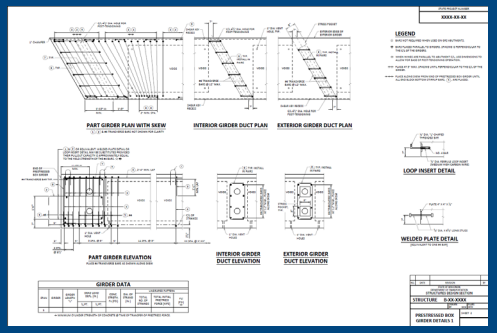


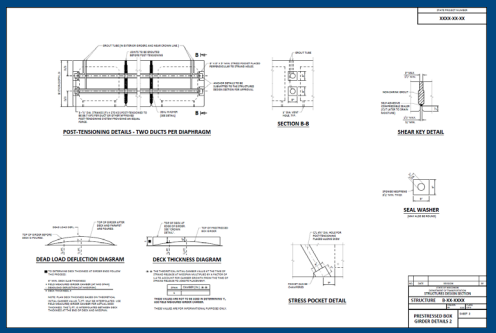
Insert Sheet Update

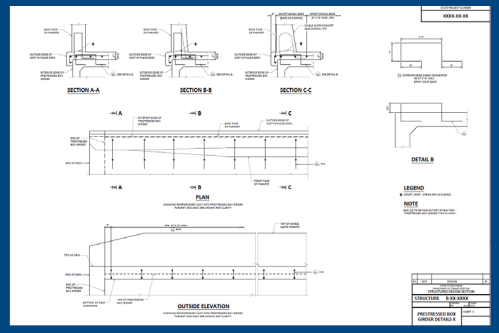
- PS Box Girder – Insert Sheets *NEW*
  - Prestressed Box Girder Sections
  - Prestressed Box Girder Details 1
  - Prestressed Box Girder Details 2
  - Parapet Details for Prestressed Box Girder







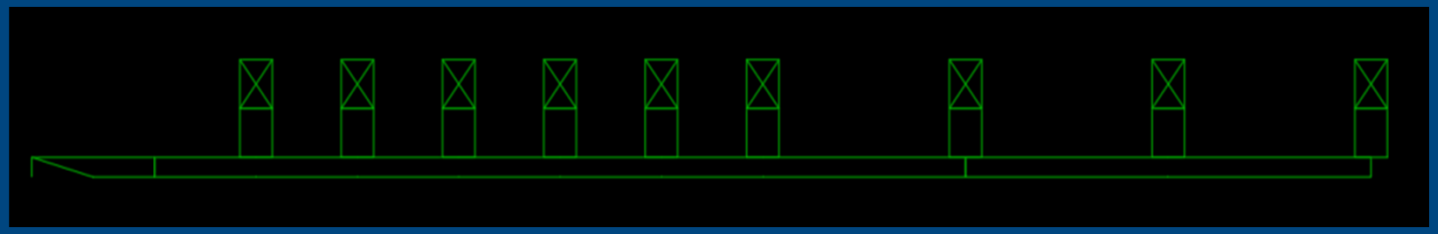




Block Details Update

January 2026 Block Details Update Summary
Updated: 2025-12-12
https://c3dkb.dot.wi.gov/

- Sheet Layouts – Consultants Updated sheet border links
- Profile Grade Line New
- Barriers New
- Culverts 2-yr Hydraulic data corrected



HYDRAULIC DATA

100-YEAR FREQUENCY:

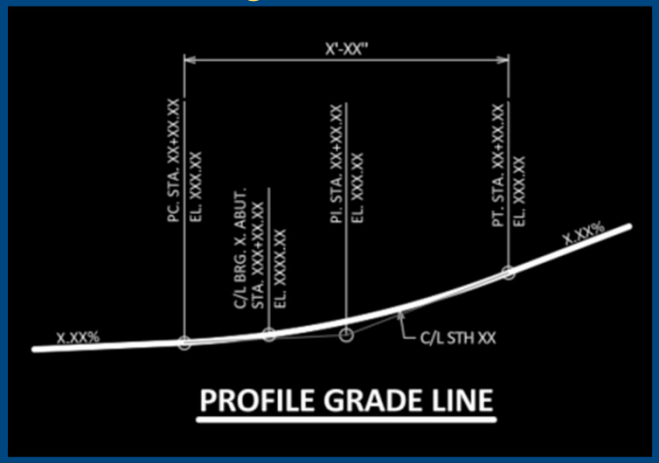
Q_{100}= C.F.S.
V_{100}= F.P.S.
HW_{100}= EL.
WATERWAY AREA = SQ. FT.
DRAINAGE AREA = SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE =

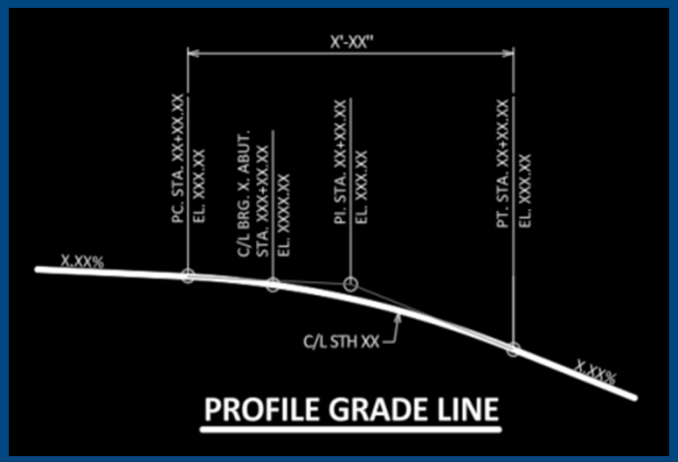
2-YEAR FREQUENCY:

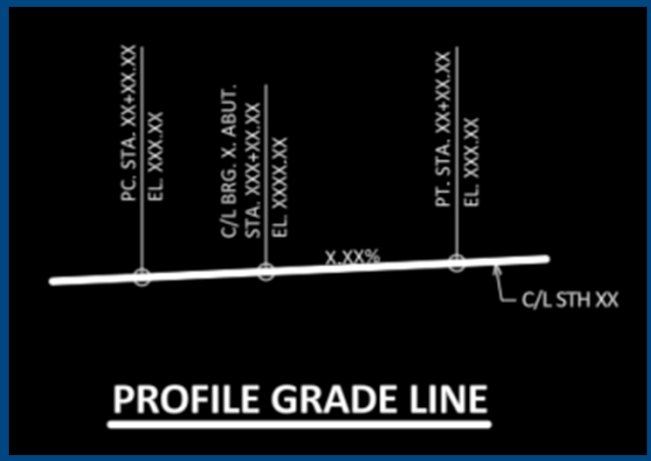
Q_2= C.F.S.
V_2= F.P.S.
HW_2= EL.

Block Details Update

- Profile Grade Line – Block Improvements
  - Sag
  - Crest
  - Tangent







Questions and Feedback

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