SECTION THRU FORMLINER

Structural Concrete can only be assumed to be 100% effective where a continuous set is necessary to maintain design strength. Membrane may be omitted as indicated on the structures.

BRICKED RIB
FORMLINER THICKNESS: 3" x 3/8" with 3/16"的办法
MAX. Voids: 2" x 1/2"

RUSTIC ASHLAR
FORMLINER THICKNESS: 3"
MAX. Voids: 1/2" x 1/2"

FIELD STONE - RANDOM
FORMLINER THICKNESS: 3/4"
MAX. Voids: 1/2" x 1/2"

RECTANGULAR CUT STONE
FORMLINER THICKNESS: 3/4" x 1/2"
MIN. SPACING: 1/2" to 3/4"

RETAINING WALL NOTES
FORMLINER CAPPING ON RETAINING WALLS SHALL BE LEVEL.

ABUTMENT NOTES
FORMLINER CAPPING ON ABUTMENTS AND WALKS SHALL BE LEVEL.

FORMLINER CAPPING ON ABUTMENTS AND WALKS SHALL BE VERTICALLY ALIGNED WITH THE FORMLINER CAPPING ON THE FRONT OF THE ABUTMENTS.

FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.

PIER NOTES
FORMLINER CAPPING ON PIERS SHALL BE LEVEL.

SPACE ADJACENT VERTICALS OF FORMLINER ON SLABBED FACE SO THAT CAPPING IS ALIGNED VERTICALLY WITH CAPPING ON VERTICAL FACE.

FORMLINER PATTERN SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS.

PARAPET NOTES
FORMLINER CAPPING ON PARAPETS SHALL BE PARALLEL TO TOP OF PARAPET.

FORMLINER DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DEVELOPMENT SECTION

APPROVED: Bill Oliva

DATE: 7/15

STANDARD 4.01
GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALE.
- ALL DISTANCES STATED ARE GIVEN AT THE FRONT FACE OF THE UNIT MODULAR BLOCK.
- FOUNDATION PLACEMENT SHALL BE 12" IN FRONT OF AND 12" IN REAR OF THE VISUALIZED BLOCK.
- BACKFILL SHALL BE 3'-0" AT ALL WALLS OF MODULAR BLOCK SYSTEM.
- ALL WALLS ARE TO BE LINED WITH GEOTEXTILE MATERIAL.
- PROTECT MODULAR BLOCK DURING PLACEMENT OF GRS APERTURE.
- EXCAVATION FOR GRS APERTURE INFORMATION TABLE ON STANDARD DATA SHEET FOR REQUIRED LINES OF GRS APERTURE.
-領 tavelow blocks and other details consistent with the selected modular block system, required corners are allowable.
- PREPARED BLOCKS NOT TO BE EXPOSED ON THE GRS APERTURE.
- DRAWN AS APPROVED BY THE DIRECTOR OF STRUCTURES DEVELOPMENT SECTION.

DESIGNER NOTES

- THE USE OF GRS APERTURES IS SUBJECT TO THEIR APPROVAL BY THE DIRECTOR OF STRUCTURES.
- PROVIDE AN ACCURATE PLACING WRAP FOR CATEGORICAL EXCLUSION FOR RAW REQUIREMENTS.
- MAXIMUM SKEW ANGLE IS 8°.
- THE TOP OF THE CONVEYOR-COLOURED BLOCKS SHALL BE 3'-0" BLOCK COUPLING.
LOCATION OF DRAPED STRANDS

PLAN VIEW

SUPPORT WITH STEEL OR ELASTOMERIC BARS

SIDE VIEW OF GIRDER

SUPPORT WITH ¼ ELASTOMERIC BRG. PAD

DETAIL A

NOTES

The stranding should be performed with a suitable lifting
Fence for handling and erecting the girder.

The stranding shall be held with the help of Girder, for Girder bars
should not be used as a guide for the stranding. The stranding shall be
performed at a time when the girder bars are held in a suitable position.

All stranding shall be done with a guide and all stranding materials shall be
kept away from the girder bars.

The stranding shall be held in a specified position and shall remain
in that position until the stranding is completed and all stranding
materials are removed.

The stranding materials shall be made from an ultimate strength of
200,000 psi.

DESIGNER NOTES

The stranding shall be performed in accordance with the
Structural Steel erection procedure. The stranding shall be
performed in accordance with the stranding procedure.

REINFORCEMENT IN END SECTION OF THE GIRDER IS BASED
ON THE STANDARD STRANDING PATTERN LATER IN THE TYPICAL
SECTION OF THE GIRDER. THE LENGTH OF THE GIRDER IS
DETERMINED FROM THE LENGTH OF THE GIRDER PLUS
A VARIOUS FOR ELASTOMERIC BRIEFS, 200, 250, 300, 350

DETAIL TYPICAL AT EACH END

The design element determined the value given in 27.5
Based on the standard stranding pattern later in the
TYPICAL SECTION of the GIRDER. THE LENGTH OF THE
GIRDER IS BASED ON THE LENGTH OF THE GIRDER PLUS
A VARIOUS FOR ELASTOMERIC BRIEFS, 200, 250, 300, 350

SECTION THRU GIRDER

SHOWING DETAILS OF ELASTOMERIC BRIEFS, 200, 250, 300, 350

STANDARD 20-01

APPROVED: Bill Oliva
DATE: 12-15
**54W Girder**

\[ a = 798.52 \text{ in.} \]
\[ r^2 = 400.41 \text{ in.}^2 \]
\[ V_a = 27.71 \text{ kN} \]
\[ V_e = -26.70 \text{ kN} \]
\[ T_1 = 321.64 \text{ kN}\text{m} \]
\[ S_1 = 11592 \text{ kN}\text{m}^2 \]
\[ S_e = -10.205 \text{ kN}\text{m}^2 \]
\[ W_T = 851.81 \text{ kN}\text{m} \]

**Pre-Tension**

\[ f' = 270,000 \text{ psi} \]
\[ f_e = 0.75 \times 270,000 = 202,500 \text{ psi} \]

**Standards to Raise Center of Gravity to Avoid Draping of 0.6" Strands**

**Arrangement at C Span - for Girders With Draped 0.6" Strands**

**54W Prestressed Girder Design Data**

State of Wisconsin Department of Transportation Structures Development Section

Approved: Bill Oliva

Date: 7-15

**Standard:** 19.16
**82W Girder**

- Geometry:
  - \( a = 980 \text{ in.} \)
  - \( r^2 = 32,431 \text{ in}^2 \)
  - \( e_0 = 42,822 \text{ lb} \)
  - \( t_e = -39.58 \text{ lb/in} \)
  - \( r = 105,413 \text{ in}^2 \)
  - \( S_e = 21,672 \text{ in}^2 \)
  - \( S_e = -22,605 \text{ in}^2 \)
  - \( K_T = 1021 \text{ psf} \)

**Pre-Tension**

- \( f_p = 270,000 \text{ psi} \)
- \( f_p = 0.75 \times 270,000 = 202,500 \text{ psi} \)
  - \( f_p \text{ for reserve strands} \)

\[ f_p \text{ per 0.6" strands: } 0.24f_p \times 202,500 = 48,444 \text{ kips} \]

\[ \begin{align*}
  f_p^2 & = 39.58 \\
  r^2 & = 32,431 \text{ in}^2 \\
  S_e & = 21,672 \text{ in}^2 \\
  t_e & = \frac{0.24f_p(2) + 39.58}{r^2} \text{ in/ft}
\end{align*} \]

**Standard Arrangements to Raise Center of Gravity**

To avoid drooping of 0.6" strands

**Arrangement at 0.6" Span - for girders with draped 0.6" strands**

**Table: Standard Strand Patterns**

<table>
<thead>
<tr>
<th>NO. STRANDS</th>
<th>( f_p ) (tons/str)</th>
<th>( f_p(1+0.6f_p) ) (kips)</th>
<th>( f_p(1+1.4f_p) ) (kips)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>19.84</td>
<td>170</td>
<td>200</td>
</tr>
<tr>
<td>20</td>
<td>22.00</td>
<td>198</td>
<td>231</td>
</tr>
<tr>
<td>22</td>
<td>24.16</td>
<td>226</td>
<td>262</td>
</tr>
<tr>
<td>24</td>
<td>26.32</td>
<td>254</td>
<td>291</td>
</tr>
<tr>
<td>26</td>
<td>28.48</td>
<td>282</td>
<td>320</td>
</tr>
<tr>
<td>28</td>
<td>30.64</td>
<td>310</td>
<td>350</td>
</tr>
<tr>
<td>30</td>
<td>32.80</td>
<td>338</td>
<td>380</td>
</tr>
<tr>
<td>32</td>
<td>34.96</td>
<td>366</td>
<td>410</td>
</tr>
<tr>
<td>34</td>
<td>37.12</td>
<td>394</td>
<td>440</td>
</tr>
<tr>
<td>36</td>
<td>39.28</td>
<td>422</td>
<td>470</td>
</tr>
<tr>
<td>38</td>
<td>41.44</td>
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<td>500</td>
</tr>
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<td>40</td>
<td>43.60</td>
<td>478</td>
<td>530</td>
</tr>
<tr>
<td>42</td>
<td>45.76</td>
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<td>552</td>
</tr>
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<td>44</td>
<td>47.92</td>
<td>534</td>
<td>592</td>
</tr>
<tr>
<td>46</td>
<td>49.98</td>
<td>562</td>
<td>610</td>
</tr>
<tr>
<td>48</td>
<td>52.14</td>
<td>590</td>
<td>638</td>
</tr>
</tbody>
</table>

**82W Prestressed Girder Design Data**

- State of Vermont
- Department of Transportation Structures Development Section
- Approved: Bill Olliva
- Date: 7-15

There is currently a moratorium on the use of 82W prestressed girders.
### Bill of Bars

<table>
<thead>
<tr>
<th>Bar No.</th>
<th>Bar</th>
<th>Unit Length</th>
<th>Bar Group</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>R501</td>
<td>R502</td>
<td>5-0 x</td>
<td>FTP 2310.003</td>
<td>TOP</td>
</tr>
<tr>
<td>R503</td>
<td>R504</td>
<td>5-0 x</td>
<td>FTP 2310.003</td>
<td>TOP</td>
</tr>
<tr>
<td>R505</td>
<td>R506</td>
<td>5-0 x</td>
<td>FTP 2310.003</td>
<td>TOP</td>
</tr>
<tr>
<td>R507</td>
<td>R508</td>
<td>5-0 x</td>
<td>FTP 2310.003</td>
<td>TOP</td>
</tr>
</tbody>
</table>

### Bar Series Table

<table>
<thead>
<tr>
<th>Series</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>R501</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R503</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R504</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Single Slope Parapet 425S

- **State of Wisconsin, Department of Transportation Structures Development Section**

**Bill of Materials**

- **Bill of Bars**
  - **Bar No.**
  - **Bar**
  - **Unit Length**
  - **Bar Group**
  - **Location**

**Additional Notes**

- **Concrete:** Place concrete on top of parapet before parapet is complete.
- **Connections:** Ensure all connections are properly made before proceeding.
- **Marking:** Mark all connections and reinforce with proper hardware.

**Approved:**

**Bill Oliva**

**Date:**

**Standard:**

- **30.32**
NOTES

Steel pipe, posts, and hardware shall be furnished by others.

All posts, masonry, and masonry posts shall be set vertical and graded, and in an open, exposed position for ease of access.

Hanger bolts shall be set to the exact grade and location as indicated on the drawing.

Steel pipe, posts, and hardware shall be furnished by others.

DESIGNER NOTES

A top of manhole cover shall be provided where required at manholes to prevent damage to manholes and cover.

Fence material, curbs, and signs shall be of standard, black, and white color with the words "Pedestrian Overpass" and "Department of Transportation Structures Development Section" as indicated on the drawing.

<table>
<thead>
<tr>
<th>DETAIL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Pedestrian Overpass</td>
</tr>
<tr>
<td>A-A</td>
<td>Section A-A</td>
</tr>
<tr>
<td>B</td>
<td>Pedestrian Cross Rail, 3/4 view</td>
</tr>
</tbody>
</table>

SECTION A-A

The section through pedestrian structure shall be as shown, with all dimensions and notes as indicated on the drawing.

PLAN AT LAMP STANDARD

Bar steel reinforcement at each lamp standard:

- 4' - 95 bars 4'6" long
- 2' - 40 bars 4'6" long
- 2' - 40 bars 9'9" long

DETAIL OF CROSS RAIL AT TOP

The cross rail shall be as shown, with all dimensions and notes as indicated on the drawing.

SECTION THRU PEDESTRIAN STRUCTURE

The section through pedestrian structure shall be as shown, with all dimensions and notes as indicated on the drawing.

PEDESTRIAN OVERPASS

State of Wisconsin
Department of Transportation Structures Development Section

Approved:

Bill Oliva

Date:

Page 37.01
**CONCRETE BEARING BLOCK DETAILS**

**ELEVATION**

**SIDE ELEVATION**

**PLAN**

**PRECAST CONCRETE BLOCK DETAIL**

**DEPTH: 8" H, 10" W, 7.875" D**

**ANCHERS IN ALL LEAST 2 LOCATING ANCHERS INCLUDE FORG ANCHORS.**

**ANCHOR BOLTS DO NOT CROSS.**

**GROUP 3C: DEEPEN PRECAST ELEMENT - ELIMINATE STRESS CONCENTRATION AND REDUCE CRACKING.**

**PRECAST BLOCK OR ANY CONCRETE BLOCK MUST EXTEND BEYOND BEARING A DISTANCE equal to the greater value of the width of the concrete block or 3".**

**NOT TO SCALE ONLY FOR INFORMATION Purpose.**

**PRECAST BLOCK MUST BE CONNECTED TO THE STRUCTURE AT LEAST 2 LOCATING ANCHORS.**

**ANCHORS MUST BE 2 ANCHORS FOR EACH 24" OF BLOCK LENGTH.**

**ANCHORS SHOULD BE IN BOTH DIRECTIONS.**

**ANCHOR BOLTS MUST BE FLUSH WITH DECK.**
**54" Prestressed Girder Details**

**State of Wisconsin**

**Department of Transportation**

**Structures Development Section**

**Approved:**

**Bill Oliva**

---

**Panel View**

**Detail A**

**Location of Draped Strands**

**Support with Steel or Elastomeric Brgs.**

**Side View of Girder**

**Support with 1/2" Elastomeric Brg. Pad**

**Designer Notes**

- **BEAM SHALL BE PRESTRESSED WITH TYPE I-BM.**

- **SPACER CONCRETE SUBSTRATE AS REQUIRED BY DESIGN TO A MINIMUM OF 2,000 PSI TO A MAXIMUM SPACER STRENGTH IS 5,000 PSI PER U.S.C.C. STANDARDS FOR ALL PATTERNS AS REQUIRED.**

- **IN SPACER CONCRETE SPACING IS BASED ON THE SPACER CONCRETE PATTERN DAMAGE ON THE SPACER CONCRETE COMES TO A MAXIMUM LENGTH OF 1.5 TIMES THE SPACER CONCRETE PATTERN DAMAGE OR 3 TIMES THE SPACER CONCRETE PATTERN DAMAGE WILL REQUIRE A COMPLETE REINFORCEMENT OF THE SPACER CONCRETE.**

- **NOTES FOR ELASTOMERIC BRS.:**
  - **SIDE PANELS AND STEEL, 5,000 PSI**

- **DETAILED AT EACH END**

- **THE DESIGN ENGINER DETERMINES THE VALUE BASED ON 2" THICKNESS AT EACH END.**

- **SPACER CONCRETE SPACING IS CALCULATED INTERSECTING SPACER CONCRETE, INCLUDING THE SPACER CONCRETE DIAMETER)*.**

- **NOTES THAT MAINTAIN 3+WEIRS ELSEWHERE ARE 2" CLEAR FROM THE DATA WHILE ACCOUNTING FOR ANY WEIRS IN ACTUAL CONCRETE (IN THE SAME CONCRETE).**

**Notes**

- **TOP REDUCES TO BE DRILLED HOLES AND BURST THROUGHOUT, EXCEPT THE CENTERS 2" OF EACH GIRDER, WHICH MUST RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES, INCLING THE INTERIOR OF THE GIRDER.**

- **DO NOT APPLY CONCRETE SEALER TO SCHEDULE REFINING EXCERPT OF CONCRETE SPACING.**

- **THE GIRDERS SHALL BE PLACED WITH A SMOOTH FLOW OF CONCRETE FOR MANAGING AND ENSURING THE SPACING.**

- **STRENGTHS SHALL BE PLACED WITH ONE END OF WHICH ENDS EMBRUNGED IN CONCRETE.**

- **STRENGTHS SHALL BE EMBRUNGED IN CONCRETE TO A MAXIMUM DEPTH OF 0.5" AND ALL WRAPPING PRODUCTS HAVING A TREATED SEAM END WITH A YIELDING STRESS OUTSIDE THE REQUIRED DIAMETER ARE REINFORCED INSTEAD OF THE REQUIRED DIAMETER.**

- **ALL STRAPS SHALL BE EMBEDDED LENGTH AS SHOWN.**

- **RING STRENGTHS SHOWN FOR STEEL BARS IN THE FREE END IS THE REQUIREMENT.**

- **AN ALTERNATE EMBRUNGED WITH A PLASTIC JOINTING AND MAY BE SUBSTITUTE FOR THE REQUIRED JOINTING IN THE DEVELOPMENT SECTION.**

- **PRESTRESSING STRANDS SHALL BE EMBRUNGED FOR DRAPE STRANDS FROM AN UNIFORM STRENGTH OF 200,000 PSI.**