Notes:

For Type 1 and 2 bearings, determine locations as shown toward the bridge centerline, where existing abutment conditions prevent placing anchor bolts in locations designated. Type 1 and 2 locations may be interchanged as long as the number of anchor bolts required relative to the abutment.

For skew > 22°, check whether Framing Plan requires adjustments in side post locations to prevent skewing. Where skew is more than 22°, check with VDOT Central Office.

Notes to Designer:

1. Insert anchor bolts at locations designated. Type 1 and 2 locations may be interchanged as long as the number of anchor bolts required relative to the abutment.

2. Roof deck top-and-end diaphragms shall be designed to prevent movement of roof deck. Anchorage shall include anchor bolts to connect to first interior beam. See Notes.

3. Use 3" floor strips to cover gap between floor plank and backwall. For Type 1 and 2 locations, where existing abutment conditions prevent placing anchor bolts in locations designated, the number of anchor bolts required relative to the abutment.

4. Plank floor - 5 x 10, dressed size 4½" x 9½". Use 3" floor strips to cover gap between floor plank and backwall. Alternating width planks shall not be adjacent to each other. Where existing abutment conditions prevent placing anchor bolts in locations designated, the number of anchor bolts required relative to the abutment.

5. For Type 1 and 2 bearings, determine locations as shown toward the bridge centerline, where existing abutment conditions prevent placing anchor bolts in locations designated. Type 1 and 2 locations may be interchanged as long as the number of anchor bolts required relative to the abutment.

6. For skew > 22°, check whether Framing Plan requires adjustments in side post locations to prevent skewing. Where skew is more than 22°, check with VDOT Central Office.

7. Notes to Designer:

- Insert anchor bolts at locations designated. Type 1 and 2 locations may be interchanged as long as the number of anchor bolts required relative to the abutment.
- Use 3" floor strips to cover gap between floor plank and backwall. For Type 1 and 2 locations, where existing abutment conditions prevent placing anchor bolts in locations designated, the number of anchor bolts required relative to the abutment.
- For skew > 22°, check whether Framing Plan requires adjustments in side post locations to prevent skewing. Where skew is more than 22°, check with VDOT Central Office.
- For Type 1 and 2 bearings, determine locations as shown toward the bridge centerline, where existing abutment conditions prevent placing anchor bolts in locations designated. Type 1 and 2 locations may be interchanged as long as the number of anchor bolts required relative to the abutment.
- For skew > 22°, check whether Framing Plan requires adjustments in side post locations to prevent skewing. Where skew is more than 22°, check with VDOT Central Office.

8. Notes:

- For Type 1 and 2 bearings, determine locations as shown toward the bridge centerline, where existing abutment conditions prevent placing anchor bolts in locations designated. Type 1 and 2 locations may be interchanged as long as the number of anchor bolts required relative to the abutment.
- For skew > 22°, check whether Framing Plan requires adjustments in side post locations to prevent skewing. Where skew is more than 22°, check with VDOT Central Office.
NOTES TO DESIGNER:

Include standards SS8-1, SS8-3A, SS8-4, SS8-5A and SS8-6A in the plans when using this standard on projects utilizing railing with curb. Substitute standard SS8-3B for SS8-3A in the plans when bolted angles are used in lieu of welded plates to connect the diaphragm channels to the beam webs. Include standard SS8-5C where skew is greater than 22° and end posts in obtuse corners would conflict with the abutment, backwall and/or lagging. Substitute standard SS8-6B for SS8-6A where beam flange width would interfere with curb attachment plates.

Include standards SS8-1, SS8-3C, SS8-4 and SS8-5B in the plans when using this standard on projects utilizing railing without curb. Substitute standard SS8-3D for SS8-3C in the plans when bolted angles are used in lieu of welded plates to connect the diaphragm channels to the beam webs. Include standard SS8-5D where skew is greater than 28° and end posts would conflict with the abutment, backwall and/or lagging.

The designer shall ensure that the pier cap and/or abutment seats are sufficient for the bearings designated.

When high water elevation is less than 2 feet below the lowest seat elevation, anchor bolts or lag screws are required at all bearing locations. When high water elevation is 2 feet or more below the lowest seat elevation, anchor bolts or lag screws are required at every other bearing location.

For spans greater than 60 feet, elastomeric bearings are designed for the maximum span length in the beam tables and full temperature range assuming a fixed bearing location at one end. However, for single span bridges, the cells place an expansion bearing at both ends. The change in pad height when designing both bearings as expansion is insignificant as rotations control. For beam spacing < 2'-0", check whether sole plates overlap and adjust details where necessary.

For spans greater than 60 feet, the Timber Bent Anchorage Detail shall not be used. A fixed bearing allowing rotation should be detailed considering the bent/pier geometry. However, the elastomeric pad used at the abutment may be used at the bent/pier without further calculation.

Cells for completing the standard sheet are located in SS8.cel library.

ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD:

BEARING DETAILS:

For beam lengths less than or equal to 60 feet, replace the default Bearing Details with cell BZAB2 when anchor bolts are not required at every location. For beam lengths greater than 60 feet, replace the default Bearing Details with BZAE1 or BZAE2 for anchor bolts required or not required at every location. Add cell BZPB1 for timber bents with span lengths less than or equal to 60 feet.

Add the following notes to the sheet:

Material: Elastomer – 50 durometer hardness.
Shim – ASTM A36 or A1011 mild steel.

Elastomeric bearings shall be molded as a single unit.
**SS-8 STEEL BEAM WITH TIMBER DECK SUPERSTRUCTURE STANDARD**

**GENERAL DETAILS**

**ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD (cont’d):**

<table>
<thead>
<tr>
<th>VARIABLE TABLE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skew</strong></td>
<td>Skew angle between line perpendicular to centerline of bridge and line thru centers of bearing</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>Total beam length from end-to-end of beam</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>Rail post spacing (6’-3” maximum)</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td>Total length of variable spaced rail posts near abutments of two-span bridges (enter “N/A” in table for single span bridge)</td>
</tr>
<tr>
<td><strong>T</strong></td>
<td>$Y \times \tan(\text{Skew}) / 2$</td>
</tr>
<tr>
<td><strong>U</strong></td>
<td>Distance between end of beam and line thru centers of bearing</td>
</tr>
<tr>
<td><strong>V</strong></td>
<td>Distance between end of beam and line thru centers of bearing</td>
</tr>
<tr>
<td><strong>W</strong></td>
<td>Distance face-to-face of rail/guardrail</td>
</tr>
<tr>
<td><strong>X</strong></td>
<td>Number of beam spaces</td>
</tr>
<tr>
<td><strong>Y</strong></td>
<td>Beam spacing</td>
</tr>
<tr>
<td><strong>Z</strong></td>
<td>Total out-to-out spacing of beams</td>
</tr>
<tr>
<td><strong>W-shape</strong></td>
<td>Beam size from table</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>Clear distance from face of backwall to end of beam (1” minimum where L \leq 60 feet; 1\frac{1}{4}” minimum &gt; 60 feet)</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Abutment backwall width</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>Seat width (12” minimum with bearing plate; 1’-1” for elastomeric bearing)</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>Distance from top of seat to finished grade at outside beam left of bridge centerline</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>Distance from top of seat to finished grade at bridge centerline</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>Distance from top of seat to finished grade at outside beam right of bridge centerline</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Sole plate width for elastomeric Bearing Detail (enter “N/A” in table when variable is not used in bearing details)</td>
</tr>
</tbody>
</table>
ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD (cont’d):

TRANVERSE SECTION:

Centerline of roadway is assumed to be centerline of bridge.

The default Transverse Section is shown for railing with curb and diaphragm connection plates welded to the girder webs for an even number of beams. For an odd number of beams, replace the default Transverse Section with cell TSW1O. When angles bolted to the beam webs are used to make the connection, replace the default Transverse Section with cell TSB1E or TSB1O for even or odd number of beams respectively.

For railing without curb, replace the default Transverse Section with cell TSW2E or TSW2O with diaphragm connection plates welded to the beam webs for even or odd number of beams respectively. When angles bolted to the beam webs are used to make the connection, replace the default Transverse Section with cell TSB2E or TSB2O for even or odd number of beams respectively.

Use the existing title as the origin point for placing the Transverse Section cell. Leave it in place when removing the rest of the existing detail.

PART SIDE ELEVATION:

The default Part Side Elevation shown is for railing with curb, concrete/masonry backwall and beam lengths less than or equal to 60 feet. For beam lengths greater than 60 feet, replace the default Part Side Elevation with cell ELC1E. For railing without curb, replace the default Part Side Elevation with cell ELC2B or ELC2E for beam lengths less than or equal to 60 feet or greater than 60 feet respectively. Use cell ELCV1 when there is insufficient seat width and anchor bolts are drilled into backwall.

When timber lagging is used, replace the default Part Side Elevation with cell ELTB1 or ELTB2 for lagging supported behind or drilled into substructure respectively.

FRAMING PLAN:

The cell library contains Framing Plan cells for both welded plates and bolted angles for the diaphragm attachment to the beam webs. In both cases, six cell series are available for the range of beam lengths covered by this standard (i.e., without skew, with left hand skew and with right hand skew for both single span and two-span symmetrical bridges).

For welded plates, the cell series are WPAxx, WPLxx and WPRxx for no skew, with left hand skew and with right hand skew respectively. For two-span symmetrical bridges, the cell series are WTAxx, WTLxx and WTRxx.

For bolted angles, the cell series are BAAxx, BALxx and BARxx for single span bridges and BTAxx, BTLxx and BTRxx for two-span symmetrical bridges.

See the cell description for the applicable span lengths for each cell.
ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD (cont’d):

FRAMING PLAN (cont’d):

Place the appropriate cell from the cell library. Use the existing title as the origin point for placing the Framing Plan cell.

For two-span bridges with different beam lengths either side of the bent/pier, move the Framing Plan details to a separate sheet. Place the two-span Framing Plan cells for both beam lengths on the sheet. Flip the second span cell so the skews are relative to each other and adjust text. Remove the "Framing Plan (spacing) symmetrical" or "Repeat Framing Plan" callout from both Framing Plans.

For multiple-span bridges, move the Framing Plan details to a separate sheet. Place the two-span Framing Plan cells for both beam lengths in the exterior spans on the sheet. Flip the second span cell so the skews are relative to each other and adjust text. Remove the "Framing Plan (spacing) symmetrical" or "Repeat Framing Plan" callout from both Framing Plans. Place the Framing Plan corresponding to the interior span between the exterior spans.

For railing with curb (Standards SS8-3A or -3B), where skew > 22° degrees and end posts in obtuse corners conflict with the abutment, backwall and/or lagging, make the following changes:

- For skews > 22° and < 28°, adjust 12" and 2'-1" spacing of end posts in obtuse corners to 1'-3" and 1'-10" respectively from the end of beam.
- For skews > 28°, omit end posts in obtuse corners. For skews > 57°, check 3'-1" dimension to rail post in obtuse corner against abutment details and adjust abutment details or 3'-1" dimension accordingly to ensure sufficient room to place post.

![22 Degree Skew](image1)

![28 Degree Skew](image2)

![57 Degree Skew](image3)
ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD (cont’d):

FRAMING PLAN (cont’d):

For railing without curb (Standards SS8-3C or -3D), where skew > 28° degrees and end posts in obtuse corners conflict with the abutment, backwall and/or lagging, make the following changes:

- For skews > 28° and < 35°, adjust 12” and 2'-1” spacing of end posts in obtuse corners to 1'-3” and 1'-10 respectively from the end of beam.
- For skews > 35°, omit end posts in obtuse corners. For skews > 64°, check 3'-1” dimension to rail post in obtuse corner against abutment details and adjust abutment details or 3'-1” dimension accordingly to ensure sufficient room to place post.

Where skew > 51°, the diaphragm in acute corners may require adjustment to connect to the first interior beam. See File No. SS8-5C-2 or SS8-5D-2 for additional information.
SS-8 STEEL BEAM WITH TIMBER DECK SUPERSTRUCTURE STANDARD
GENERAL DETAILS

ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD (cont’d):

DETAILS AT ABUTMENT:
Remove this detail from the standard sheet when timber lagging is used.

OTHER DETAILS REQUIRED:
For skewed bridges, add a Typical Anchor Bolt Layout detail.*
For bents/piers with beam lengths greater than 60 feet on either side, provide bearing/anchorage details.*
If skew and available seat width require clipping the flanges and/or bearing/sole plate, provide clip details.*
* Provide details on this sheet if there is sufficient room. Otherwise, place details on standard sheet SS8-3 or -3A with a note on this sheet referencing the sheet location.

NOTES:
Where skew ≤ 22° or skew > 22° and end posts in obtuse corners do not conflict with the abutment, backwall and/or lagging, remove the bracketed note from the standard.
Where skew > 22° degrees and end posts in obtuse corners conflict with the abutment, backwall and/or lagging, remove the bracketed note from the standard after making changes detailed under FRAMING PLAN.