

Diagram illustrating the construction details of a continuous beam and slab, showing various joints and components:

- END POST**: Located at the ends of the beam.
- FIRST PANEL VARIABLE IF NEEDED 6'-3" MAX.**: Dimension for the first panel length.
- 11" MIN.**: Minimum dimension for the first panel.
- FIXED JOINT**: Joint between the first and second panels.
- TYPICAL POST SPACING = 6'-3" MAX.**: Dimension for the typical post spacing.
- 11" MIN.**: Minimum dimension for the typical post spacing.
- SLAB CONST. JT.**: Slab construction joint.
- EXPANSION JOINT**: Joint between the second and third panels.
- FIRST PANEL VARIABLE IF NEEDED 6'-3" MAX.**: Dimension for the first panel length.
- 11" MIN.**: Minimum dimension for the first panel.
- END POST**: Located at the end of the beam.
- END OF WINGWALL**: Located at the end of the wingwall.
- 11" MIN. 1'-7" MAX.**: Dimension for the end of the wingwall.

Additional notes from the diagram:

- EXPANSION SPLICE IN BEAM GUARD AND CHANNEL RAIL SHALL BE DETAILED AT A POST ON EITHER SIDE OF EXPANSION JOINT. (ONLY ONE REQ'D.)

[illegible]

The diagram illustrates the cross-section of a T-6 Culvert Header. Key features include:

- Seal Weld:** Indicated by a triangle symbol and labeled "SEAL WELD".
- Dimensions:**
  - Total width: 10"
  - Top flange thickness:  $\frac{2}{4}"$
  - Web thickness:  $\frac{1}{4}"$
  - Bottom flange thickness:  $\frac{1}{4}"$
  - Header height: 9  $\frac{1}{2}"$
  - Header depth from top flange: 6"
  - Header depth from bottom flange: 1  $\frac{3}{4}"$
  - Header width at base: 6"
  - Header width at top: 3  $\frac{1}{4}"$
  - Header width at bottom: 2"
  - Header width at side:  $\frac{3}{8}"$
- Components:**
  - (1) Header
  - (2) Seal Weld
  - (3) Header
- Notes:**
  - "2  $\frac{1}{4}"$  FOR 1-3" CULVERT HEADER"
  - "5  $\frac{1}{4}"$  FOR 1-6" CULVERT HEADER"

Technical drawing of a bracket assembly showing a side view and a top view.

**Side View Dimensions:**

- Hex Bolt:  $\frac{1}{2}$ "
- Plate Thickness: 1.375 GALVANIZED
- Plate Width: 1"
- Vertical Rods: 1"
- Tack Weld:  $\frac{1}{3}$  POINTS

**Top View Dimensions:**

- Central Hole: 5" DIA. HOLE
- Mounting Holes: 3" (spacing between holes)
- Plate Width: 3"
- Plate Height: 3"

Diagram illustrating the layout of a 4x4 grid of slots, showing dimensions and labels:

- Overall width:  $1'-0\frac{1}{2}"$
- Slot dimensions and spacing (from left to right):
  - REG. SPLICE:  $2\frac{1}{4}"$
  - EXP. SPLICE:  $2\frac{3}{4}"$
  - REG. SPLICE:  $4\frac{1}{4}"$
  - EXP. SPLICE:  $3\frac{1}{2}"$
  - REG. SPLICE:  $4\frac{1}{4}"$
  - EXP. SPLICE:  $3\frac{1}{2}"$
  - REG. SPLICE:  $2\frac{1}{4}"$
- Labels for slot types:
  - $\frac{3}{8}" \times \frac{1}{8}"$  REG. SLOTS
  - $\frac{3}{8}" \times \frac{2}{2}"$  EXP. SLOTS
  - $\frac{3}{4}" \times \frac{2}{2}"$  REG. SLOTS
  - $\frac{3}{4}" \times \frac{3}{4}"$  EXP. SLOTS
- Direction of Traffic: Indicated by an arrow pointing right.
- Centerline: Indicated by a dashed line labeled "C. OF POST CONNECTION".

5/8" DIA. BUTTON HEAD OVAL SHOULDER  
BOLTS WITH HEX NUTS AT ALL SLOTS.

Technical drawing of a field clip. The drawing shows a cross-section of the clip with the following dimensions and labels:

- Overall width:  $9\frac{1}{2}"$
- Distance from left edge to first hole center:  $1\frac{3}{4}"$
- Distance between hole centers:  $6"$
- Distance from second hole center to right edge:  $1\frac{3}{4}"$
- Overall height:  $5"$
- Thickness of the clip:  $\frac{1}{16}"$
- Radius of the holes:  $\frac{1}{2}"$
- Labels: "FIELD CLIP" and "A.S., B.F.O.D."

The drawing consists of two views of a four-poster bed frame. The left view is a top-down plan view showing a rectangular frame with four circular posts. Dimensions include a total width of 1400, a total depth of 1400, and a central square area of 1100 x 1100. The distance between the posts is 1100. A label '1' points to the top rail, and a label '2' points to the side rail. A dimension of 1100 is also shown for the distance between the side rails. The right view is a side elevation showing the frame's profile, with a label 'GF' indicating the ground level.

Figure 10 consists of two diagrams, (a) and (b), showing typical reinforcement details for slab edge beams.

(a) Slab Edge Beam with Top Reinforcement: This diagram shows a cross-section of a slab edge beam. The reinforcement includes top bars (circles with crosses) and bottom bars (circles with dots). The top bars are bent up at an angle. Dimensions include a total width of 3' and a top reinforcement area of 1/4". The bottom reinforcement is shown as 1/2" bars. The top reinforcement is bent up at an angle of 1/8" MAX.

(b) Slab Edge Beam with Bottom Reinforcement: This diagram shows a cross-section of a slab edge beam. The reinforcement includes top bars (circles with crosses) and bottom bars (circles with dots). The bottom bars are bent up at an angle. Dimensions include a total width of 3' and a bottom reinforcement area of 1/4". The top reinforcement is shown as 1/2" bars. The bottom reinforcement is bent up at an angle of 1/8" MAX.

### TYPICAL SPLICE

SHIM PLATES 6" X 1/16" X 6" MAY BE USED BETWEEN TOP OF POST AND CHANNEL MEMBER TO ACHIEVE VERT. ALIGNMENT.

- ① W6x25 WITH 2 -  $\frac{3}{4}$ " x 2 $\frac{1}{2}$ " VERT. SLOTS IN FLG. SLOT ON OTHER SIDE OF WEB IS OPTIONAL FOR NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POSTS VERTICAL AND NORMAL TO GRADE LINE.
- ② CBx15s WITH  $\frac{1}{8}$ " DIA. HOLES FOR NO. 8.
- ③ BASE PLATE 1' x 9 $\frac{1}{2}$ " x 10" WITH  $\frac{1}{4}$ " x  $\frac{1}{2}$ " SLOTTED HOLES FOR ANCHOR BOLTS NO. 4. WELD TO NO. 1 AS SHOWN.
- ④ A325 -  $\frac{3}{4}$ " HEX BOLTS (GALVANIZED) WITH A325 NUT AND WASHER, 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS  $> 15$ ". USE 8" LONG AT ALL OTHER LOCATIONS. 4 REDD. PER POST. TIGHTEN AND PLACE NORMAL TO PLATE NO. 3. CHAMFER TOP OF BOLTS BEFORE THREADING.
- ⑤  $\frac{1}{4}$ " x 8" x 8" FLAT BAR WITH  $\frac{1}{8}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 4.
- ⑥ 1 $\frac{3}{4}$ " x 3" MOUNTING BOLT WASHER (GALVANIZED).
- ⑦  $\frac{3}{8}$ " DIA. BUTTON HEAD POST MOUNTING BOLT WITH ROUND WASHER AND NUT.
- ⑧  $\frac{3}{8}$ " DIA. x 2" HEX BOLTS WITH NUT AND TWO WASHERS EACH.
- ⑨ PLATE  $\frac{1}{2}$ " x 5 $\frac{1}{4}$ " x 6" AT BASIC POST CONNECTION.  $\frac{1}{4}$ " DIA. HOLES IN PLATE.  $\frac{1}{8}$ " DIA. HOLES IN CHANNEL.
- ⑩ PLATE  $\frac{1}{2}$ " x 5 $\frac{1}{4}$ " x 1'-2 $\frac{1}{2}$ ".  $\frac{1}{4}$ " DIA. HOLES IN PLATE.  $\frac{1}{8}$ " DIA. HOLES IN CHANNEL. EXPANSION SLOTS ON JOINT SIDE OF POST  $\frac{3}{4}$ " x 2 $\frac{1}{2}$ " PLATE.  $\frac{1}{8}$ " x 2 $\frac{1}{4}$ " IN CHANNEL. (AT EXPANSION SLOPE.)
- ⑪ PLATE  $\frac{1}{2}$ " x 5 $\frac{1}{4}$ " x 11 $\frac{1}{2}$ ".  $\frac{1}{4}$ " DIA. HOLES IN PLATE.  $\frac{1}{8}$ " DIA. HOLES IN CHANNEL. (AT TYPICAL SLOPE.)

BID ITEM SHALL BE "RAILING STEEL TYPE W B-\_-\_"  
WHICH INCLUDES ALL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL MATERIAL EXCEPT ANCHORAGE DETAIL NO. 5  
SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND CHANNELS SHALL BE GIVEN A NO. 6 COMMERCIAL BLAST CLEANING BY SSPC SPECS.

ALL MATERIAL USED IN FABRICATION SHALL BE  
MADE FROM MATERIALS CONFORMING TO ASTM  
DESIGNATION A709 GRADE 36 UNLESS NOTED  
OTHERWISE.

FILL BOLT SLOT OPENINGS IN POST SHIMS & PLATE NO. 3 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

SEE STANDARD SPECIFICATIONS FOR RAIL TYPE.

CHANNEL MEMBER SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF EIGHT (EXCEPT AT ABUTMENTS).

AT EXPANSION SLOTS IN RAIL AND CHANNEL MEMBERS, TIGHTEN BOLTS, BACK OFF ONE HALF TURN AND BURR THREADS. RAIL MEMBERS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC AND THE UPPER RAIL SHALL LAP THE LOWER RAIL.

STEEL POST SHIMS MAY BE USED UNDER POSTS  
WHERE REQ'D. FOR ALIGNMENT.

SEE BRIDGE MANUAL 30.2 FOR ALLOWED USE.

▲ TIE TO TOP MAT OF STEEL. PUT THESE BARS IN BILL OF BARS FOR SUPERSTRUCTURE, NOT REQ'D. FOR BOX CULVERT HEADERS.

⊗ PAY LIMITS FOR TYPE "W" STEEL RAILING.

WEIGHT = 45 LB/FT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker

DATE:  
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