

Figure 5-397.550

14", 18" & 22" Rectangular Prestressed Concrete Beam (Pretensioned) RB-___

Approved, and signed, October 22, 2008. Last date revised: January 13, 2015

Re-Approved 01-13-2015

At CAMBER DIAGRAM:

- Changed the "Initial Total Camber" to "Erection Camber" in the detail.
- Within the 1st Camber Diagram note, changed the word "Railing" to "Barrier"
- Changed the 2nd Camber Diagram note to read: "Contractor will take elevations at top of beams after erection and will allow for deflection shown to enable building forms to correct grade and specified slab thickness. Provide copy of elevations to the engineer"

At GENERAL NOTES:

- Removed the 1st note: "Tops of beams shall be rough floated and broomed transversely for bond."
- Changed the 3rd note to read: Mark each beam showing bridge number, casting date, and individual identification letters and numbers on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Mark fascia beams on the inside face. Ensure all markings are stencilled and clearly legible. For location of beams, see framing plan.
- In the 4th note: Changed the word "shall" to "is" and removed the "Mn/DOT" reference.
- Changed numbered note ③ to read: Use 7-wire low relaxation prestressing strand, conforming to ASTM A416, grade 270.
- Added to the end of numbered note ⑥: Beams detailed to include a tapered plate per standard figure B309 must include sole plate.
- Changed numbered note ⑦ to read: For inserts in the outside of fascia beam, adjust the rod length according to the overhang dimension.
- Added numbered note ⑧: Rough float and broom transversely for bond per spec. 2405.3.D.

At All END VIEWS:

- Added $\frac{3}{4}$ " to the Chamfer at the bottom flange.
- Changed the subtitle to read: Cut strands flush with concrete. Cover ends with one component polyurethane sealant per approved product list.

At BEAM ELEVATION:

- Changed the look of the Sole Plate to match the B303 detail.

At SECTION AT $\frac{1}{2}$ SPAN:

- Added dimension line and numbered note at the top flange location for rough finish guidance.

At DETAIL "A":

- Changed threaded rod note to read "3/4" dia. x 2'-0" rod 2" threaded. See spec. 2405.3.K for coating requirements"

CHANGED DESIGNER NOTE to read: For bridges with semi-integral and parapet abutments, design the concrete end diaphragm to accommodate the shallow beam depth, as no standard end diaphragm detail exists.

Revised 04-17-2013

This standard was updated to convert reinforcing bar marks from metric to U.S. customary bar designations.

Revised 10-22-2009

At the BAR BEND DETAILS:

- added bar G1305E.
- at the G1603E bar bend, Changed the h+4 $\frac{1}{2}$ " to h+4"

Added "ROUND CONCRETE STRENGTH TO ONE TENTH KSI." to the designer note under the Minimum Concrete Strength Table.

Added DETAIL "B" (showing placement of G1305E bar) to the sheet.

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At the GENERAL NOTES: Added numbered note ⑥ “Place G1001E bar on top of the top row of prestressing strands in the bottom of the beam.”

At END VIEW:

- Replaced the original “END VIEW” with three new “END VIEWS” reflecting the different size beams, reinforcement and strand options. (End View-22” RB, End View-18” RB, End View-14” RB)

At BEAM ELEVATION:

- Added bar no. G1305E to the end of the beam.

At STRAND ARRANGMENT TABLE:

- Added “3rd ROW FROM BOTTOM” row to the table.

At MINIMUM CONCRETE STRENGTH TABLE:

- Changed wording in the table title: from “P.S.I.” to “K.S.I.”
- Added KSI to the table that lists concrete strength.

At CALCULATED PRESTRESS LOSSES TABLE:

- Added “TOTAL LOSSESKSI” row to the box.

At SECTION AT CENTERLINE SPAN:

- Changed reinforcement clearance dimension at the bottom of the beam from 1 ½” to 1 ¼”.
- Added additional strand options to the existing bottom two rows leaving a 2” dimension at the center of the beam, also added an additional third row of strand options from the bottom at a 2” spacing.

At DETAIL “A”:

- Changed note to read “3/4” DIA. x 2'-0” ROD 2” THREADED. SEE SPECIAL PROVISIONS FOR COATING REQUIREMENTS”

Revised 04-22-2009

ADDED: “CALCULATED PRESTRESS LOSSES” box to the sheet.

REVISED: The input data fields to show dashed lines to indicate where designer needs to input information.

Revised 12-17-2008

At End View

- Added 1/4" clear dimension to the side.
- Rescaled the size of the G1302E bar.

At Beam Elevation

- Changed spacing of G1302E bars near the bearing from 2" to 2½" and changed dimension string at the top of the beam near the bearing from 2'-10" to 2'-11".
- Added "E" to bar mark G1302 at the end of the girder.

At Section at CL Span

- Lowered the line indicating the "Center of Gravity of Strands" to match the beam elevation.
- Rescaled the size of the G1302E bar.
- Added CL to the section.

Strand Arrangement Table

- Revised the wording in the "Location" column.
- Added note "All Straight Strand" below the table.

General Notes

- Changed note from "As an alternate to the diaphragm anchorages shown...." to "As an alternate to the end diaphragm anchorages shown...."
- Changed note ④ from "If spacing is less than the dimension shown, stagger bars to avoid interference." to "May stagger bars to avoid interference."
- Changed note ⑥ from "For integral abutment. Sole plate can be eliminated...." to "For integral abutment bridges, sole plate can be eliminated...."
- Changed note ⑦ from "For inserts in the outside of fascia beam, the length shall be...." to "For inserts in the outside of fascia beam, the rod length shall be...."

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Reinforcement Details

- Bar G1001E - Changed horizontal bar dimension from 1'11" to 1'-11½" to match side clearance.
- Bar G1302E - Changed vertical height from $h + 4"$ to $h + 4\frac{1}{2}"$. Changed horizontal bar dimension from 1'-6" to 1'-10" to match other PCB.
- Bar G1603E - Changed vertical height from $h + 4"$ to $h + 4\frac{1}{2}"$. Changed horizontal bar dimension from 8" to 10".

At Concrete End Diaphragm

- Changed title from "Concrete End Diaphragm" to "Concrete End Diaphragm Anchorages".
- Changed note below the detail from "(See detail B816 for diaphragm details)" to "(See detail B816 for concrete end diaphragm details)".
- Added "CL Beam" to plan view.

At Section Height "h" Table

- Changed note below the table from "Place an "x" in the appropriate box." to "An "x" in the box indicates the section height."

Miscellaneous

Added "- - - -" to various locations to indicate the designer should fill in the blank.

Re-Approved 10-22-2008

At Beam Elevation

- Changed shear reinforcement spacing between 3' from the end of the beam to the centerline of the span.
- Changed (16" MAX.) to 16" MAX. SPG. (Italicized designer note)

At Beam Elevation (cont'd)

- Removed "(MIN.)" from 2'-10"(MIN.) dimension near the end of the beam.
- Changed ½" vee to ½" chamfer.
- Added 2-G1302 bar mark to designate reinforcement.

At End View

- Changed the wording from "No Bevel" to "No Chamfer".

Miscellaneous

CHANGED: "CONTRACTOR SHALL PROVIDE TEMPORARY BRACING IF NEEDED" block to "CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT). CONTRACTOR SHALL PROVIDE TEMPORARY BRACING."

ADDED: "OVERHANG SUPPORT CONCEPT SKETCH" detail with note referencing the "Construction Notes" on the front portion of the bridge plans.

ADDED: Designer note as reminder to include rectangular beam temporary bracing note to the "Construction Notes" on the front portion of the plans.

CHANGED: "At this time rectangular beams are used with integral abutments only" block to italicized Designer Note.

ADDED: Clouded-Italicized Designer Note to sheet.

CHANGED: Note below the existing Prestressing Strand Diameter box to a Designer Note with italicized text.

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Approved, and signed, April 29, 2003.