

**Figure 5-397.532**

**96MW Prestressed Concrete Beam (Pretensioned) 96MW-**

Approved, and signed, September 22, 2011. Last date revised: December 2, 2015

**Revised 12-02-2015**

At END VIEW:

- Changed the note under the END VIEW title to read: Cut strands flush with concrete. Cover ends with sealant per approved products list "Bridge-Prestressed Beams-Cut Strand Sealant."
- Turned the top of the G608E bars inward to be consistent with other beam sheets.
- Within the "At contractor's option" note: changed the wording *from* "...2 – ½" dia. Strands" *to* "...TWO, ½" min. dia. strands..." for clarity.
- Slightly adjusted the location of the draped strands to show top strands 3" down from the top of the beam.
- Added a break line at mid-depth of the beam to free up space on the sheet.

At BEAM ELEVATION:

- The term "Bursting" was changed to "Splitting" in the designer note at the beam end.
- Bars G608E and G609E have been added to the alternate spacing dimension near the end of the beam.
- A 3" dimension was added near the end of the beam to clarify the starting location for 2- G608E bars.
- The note for the "Optional: 3" Max. Dia. Sleeve for hauling..." has been changed to circled note 10 and the note has moved under the General Notes.
- Removed the bubble line around the designer note pointing to the sole plate dimension.
- Clarified the location of G402E bars.
- Replaced the G402E bars with G404E and changed the name of the G404E bar to G402E.
- Added a break line at mid-depth of the beam to free up space on the sheet.

At SECTION AT CL SPAN:

- Changed the note on the right side of the web from "1¼" CLR. (TYP.)" to "1¼" CLR."
- Added note "1 1/8" CLR. and circled note 9 at the lower left corner.
- Changed bar G404E to G402E.
- Added a break line at mid-depth of the beam to free up space on the sheet.

At CONCRETE END DIAPHRAGMS and STEEL INTERMEDIATE DIAPHRAGM:

- Changed the look of the elevation views to better represent the actual beam flanges and web.
- Added Designer Note: "Min. Distance between threaded insert and end of beam is 3"."

At MINIMUM CONCRETE STRENGTH – KSI Table

- Added Designer Note "Indicate min. required concrete strength, round concrete strength to one tenth KSI."

At GENERAL NOTES:

- Removed the note "Approximate weight of beam is \_\_ tons."
- Changed 6<sup>th</sup> note from "Prestressing strands shall be 0.6" diameter, 7-wire low relaxation strand, conforming to ASTM A416, Grade 270." to "Use 0.6" dia. 7-wire low relaxation prestressing strand, conforming to ASTM A416, grade 270."
- Added circled note 9 "Typ. Clr. for entire bottom flange."
- Added circled note 10 "Optional: 3" Max. Dia. Sleeve for hauling..."

REINFORCEMENT CHANGE:

- Removed the L shaped G402E from the bar bend details.
- Renumbered the U shaped G404E bar to G402E and made the change throughout the sheet.

**Re-Approved 01-13-2015**

At the Y DISTANCES TABLE:

- Changed note from "(IN INCHES)" to "(INCHES)" to the end of the table title.

At CAMBER DIAGRAM:

- Changed the "Initial Total Camber" *to* "Erection Camber" in the detail.
- Changed the 1<sup>st</sup> Camber Diagram note to read: "Erection camber given is after diaphragms are in place."
- Within the 2<sup>nd</sup> Camber Diagram note, changed the word "Railing" to "Barrier"

- Added to the end of the 3<sup>rd</sup> Camber Diagram note: “Provide copy of elevations to the engineer”

At GENERAL NOTES:

- Changed the 2<sup>nd</sup> 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 3<sup>rd</sup> note: Changed the word “shall” to “is” and removed the “Mn/DOT” reference.
- Changed the 7<sup>th</sup> to read: Prestressing strands shall be 0.6” diameter, use 7-wire low relaxation prestressing strand, conforming to ASTM A416, grade 270.
- Added Note: “Apply an approved sealer to the sides of the beam near each end per the special provisions.”
- Changed the end of numbered note ⑤: *from*: “per special provisions” *to* “per approved products list”
- Removed the “MnDOT” reference from numbered note ⑦.

REINFORCEMENT CHANGE:

- Removed G407E from the bar bend details and at the Beam Elevation and Section at  $\Phi$  Span locations.
- Changed the G402E and G508E bar bend detail shape and separated to two bend details.
- Increased bar sizes, G505E and G508E to G605E and G608E throughout the standard. Also added bar G609E to the bar bend details and the beam end at the “Beam Elevation”.

At END VIEW:

- Added 1 ¼” clr. to the G605E bar designation.
- Added subtitle: Cut strands flush with concrete. Cover ends with one component polyurethane sealant per approved product list. (G609E bar not shown)

At BEAM ELEVATION:

- Changed the bursting reinforcement spacing to 3” in the designer note at the beam end.
- Added clearance dimension “G605E 2” CLR.” in the top flange at the beam end.
- Changed the web reinforcement at the beam end to an alternating sequence with the G608E and G609E bars. Also changed the accompanying notes.
- Removed the G407E from the detail and the dimension line for spacing.
- Changed the 3” Max. Dia. Sleeve for Hauling note to “Optional:”

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”

At SECTION AT  $\Phi$  SPAN:

- Removed the G407E bar and accompanying note from the detail.

**Revised 04-17-2013**

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

**Revised 05-24-2012**

At End View - Changed the spacing of the G2506E in the top flange *from* 2 sps. @ 8” = 1’-4” *to* 2 sps. @ 9” = 1’-6”. Changed the spacing of the center two G2506E *from* 9” *to* 5” at fabricators request.

At Section at  $\Phi$  of Span

- Changed the web vertical bars *from* 2-G1302E “C” shaped bars *to* a single upside down “U” shaped G1304E bar.
- Added a G1307E “L” shape bar at the bottom of the G1304E on each side in the bottom flange.
- Changed the location of the G2506E bars due to the spacing change in the “End View”.

At Beam Elevation

- Added an additional 3” max. dia. sleeve for hauling, 2’-0” from the original, away from the end of the beam.
- At the top of the elevation view, a space was added at the location where the G1302E bars end and the G1304E/G1307E bars start. This is labeled with a blank dimension to be filled in by the designer (12” max).
- The reinforcement and the reinforcement labeling in the elevation has changed to show where the 2-G1302E bars end and the G1304E/G1307E bars start.
- At the bottom of the elevation view, the reinforcement labeling was changed *from* 2-G1003E (sp. w/G1302E) *to* 2-G1003E & 2-G1307E (sp. w/G1304E).
- At the “Symmetrical about  $\Phi$  Span” location, the bar spacing designation was changed *from* G1302E spg. except as noted *to* G1304E spg. except as noted.
- Bar G1304E was added to the note at the top of the elevation view pointing out the G1001E bars.

At Bar Bending Details – Added the G1304E and G1307E bar details.

Approved, and signed, September 22, 2011

NEW STANDARD