

**B403**

**Steel Intermediate Diaphragm (For 36M, 40MH, MN45 - MN63 Prestressed Concrete Beams)**

Re-Approved, and signed, April 21, 2021.

**Re-Approved 04-21-2021**

THROUGHOUT the DETAIL:

- Changed all instances of “PER SPEC.” to “IN ACCORDANCE WITH SPEC.”

At DETAIL “A”:

- Changed the note pointing to the bolt through the web *from* “7/8” Dia. A307 bolts, per spec. 3391.2.A, with two hex nuts, or equal, and two hardened 3” sq. x 5/16” plate washers each at all interior beam diaphragm connections” *to* “7/8” Dia. A307 bolts, in accordance with spec. 3391.2.A, with two hex nuts, and two hardened 3” sq. x 5/16” plate washers each at all interior beam diaphragm connections”.

**Revised 12-20-2018**

At sheet Title Block:

- Changed sheet title from “Steel Intermediate Diaphragm (For 36M, MN45 - MN63 Prestressed Concrete Beams)” to “Steel Intermediate Diaphragm (For 36M, 40MH, MN45 - MN63 Prestressed Concrete Beams)”

At DIAPHRAGM CONNECTION FOR 36M AND MN45 BEAMS:

- Changed title of the detail to “DIAPHRAGM CONNECTION FOR 36M, 40MH AND MN45

At TABLE (in bottom left corner):

- Added row (2<sup>nd</sup> row) with diaphragm information for 40MH beam.

**Revised 01-05-2017**

At SECTION A-A:

- Changed note pointing to the  $\Phi$  of the bolt anchorage to read: “ $\Phi$  Bolt Anchorage and  $\Phi$  Diaphragm”.

At SECTION A-A and B-B:

- Lengthened the  $\Phi$  of the beam the full length of the section for better clarity.

**Re-Approved 11-03-2015**

At PART TRANSVERSE SECTION at DIAPHRAGM:

- Moved the section arrows to better clarify the section A-A location

At SECTION A-A:

- Removed from the Cast-In-Place bolt anchorage note “Torque anchor bolts to 80 ft.-lbs.”

At DETAIL A:

- Moved the channel, diaphragm connection plates, and Section B-B to better represent the actual location in relationship to the beam. Also raised the channel by 1/2” by adjusting the channel hole dimensions.

At the DIAPHRAGM CONNECTION details, The B-DETAIL sub-title and in the TABLE:

- Removed all references to the 45M and 54M beam types.
- At the Diaphragm Connection for the MN54 – MN63 beams: Aligned the “tic marks” for the hole locations on the beam face and the diaphragm faces

Under NOTES:

- Changed all notes to “Active Voice” if needed.
- Added 3<sup>rd</sup> note: Torque all bolts, including anchor bolts to 80 ft.-lbs.”

**Revised 09-11-2014**

REMOVED: the term “Mn/DOT” from all locations referencing MnDOT Spec. throughout the detail.

At DETAIL A:

- Added “PER SPEC. 3391.2.B” to the bolt description in the note pointing to the diaphragm bolts.

- Changed the spec number *From: 3391.2A To: 3391.2.A* within the note pointing to the bolts going through the beam web.

At Section A-A:

- Added “PER SPEC. 3391.2.B” to the H.S. Bolt description within the note pointing to the anchorage.

Under NOTES:

- Changed the spec. number in the 2<sup>nd</sup> note: *From: 2405.3M To: 2405.3.K.*
- Changed the 3<sup>rd</sup> note to read: Shop bend the leg of the 12" plate to conform to the diaphragm. A 3/8" x 6" x 6" angle may be used for diaphragms perpendicular to beams.
- Changed the 4<sup>th</sup> note to read: Include all structural steel shown on this detail, including bolts and washers, in unit price bid for diaphragms for prestressed beams.
- Changed the 6<sup>th</sup> note to read: Galvanize steel plates and shapes in accordance with spec. 3394.

**Revised 10-22-2009**

Under NOTES:

- Added note: STEEL PLATES AND SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH Mn/DOT SPEC. 3394.
- Added note: GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

**Revised 06-14-2006**

Changed B-Detail subtitle (For 36M – 54M, MN45 AND MN54 Prestressed Concrete Beams) *to* (For 36M – 54M, MN45 - MN63 Prestressed Concrete Beams)

At DIAPHRAGM CONNECTION and TABLE: added MN63

Under NOTES:

- changed SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION. *to* INSTALLATION SHALL CONFORM TO Mn/DOT SPEC. 2405.3M.
- changed ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS. *to* ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN UNIT PRICE BID FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

**Re-Approved 10-26-2005**

Changed B-Detail subtitle (For 36M – 54M Prestressed Concrete Beams) *to* (For 36M – 54M, MN45 AND MN54 Prestressed Concrete Beams)

At DIAPHRAGM CONNECTION FOR BEAMS: Changed subtitle 36M AND 45M BEAMS *to* FOR 36M, 45M AND MN45 BEAMS

At DIAPHRAGM CONNECTION FOR BEAMS:

- Changed subtitle 54M BEAMS *to* FOR 54M AND MN54 BEAMS
- Specified dimensions for 54M beams and added MN54 dimensions

At TABLE: Added MN45 and MN54 information

**Revised 09-11-2004**

At SECTION B-B: changed subtitle TYPICAL SECTION AT CONTINUOUS OR STAGGERED INTERIOR DIAPHRAGMS *to* TYPICAL SECTION AT INTERIOR BEAM WITH CONTINUOUS OR STAGGERED INTERMEDIATE DIAPHRAGMS

**Revised 09-09-03**

At DIAPHRAGM CONNECTION FOR BEAMS (36M AND 45M BEAMS): Changed 1" x 2<sup>1</sup>/<sub>4</sub>" LONG SLOTTED HOLE ... *to* 1<sup>1</sup>/<sub>8</sub>" x 2<sup>3</sup>/<sub>8</sub>" LONG SLOTTED HOLE ...

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At DIAPHRAGM CONNECTION FOR BEAMS (54MBEAMS): Changed 1" x 2<sup>1</sup>/<sub>4</sub>" LONG SLOTTED HOLE ...  
to 1<sup>1</sup>/<sub>8</sub>" x 2<sup>3</sup>/<sub>8</sub>" LONG SLOTTED HOLE ...

Approved, and signed, November 22, 2002.