

**BRIDGE DESIGN MEMORANDUM – DM0311**

**TO:** RPG Structural Engineers  
Design Consultants

**DATE:** December 14, 2011

**RE:** Diaphragms for Prestressed Concrete Beams – Revisions to Sections 15.5.7 and 17.3.6 of the *SCDOT Bridge Design Manual*

The first paragraph of Section 15.5.7 of the *SCDOT Bridge Design Manual* shall be deleted and replaced with the following paragraph:

For prestressed beam spans, cast-in-place concrete diaphragms shall be used at all supports with the beams embedded a minimum of 3 in into the diaphragm. For spans greater than 40 ft, intermediate diaphragms shall also be used. If the lowest elevation of the span (at the bottom flange of beam) is 20 MSL or above, the intermediate diaphragms may be constructed of either cast-in-place concrete or structural steel. If the lowest elevation of the span is below 20 MSL, the intermediate diaphragms must be constructed of cast-in-place concrete. Structural steel diaphragms must be detailed as presented in the *SCDOT Bridge Design Drawings and Details* (available at the SCDOT website). At a minimum, one line of intermediate diaphragms shall be detailed at the centerline of each span having a length greater than 40 ft but less than 100 ft, and two lines of intermediate diaphragms shall be detailed at the third points of each span having a length greater than or equal to 100 ft. For skews of 20° or less, the intermediate diaphragms may be placed along the skew of the bridge. For skews in excess of 20°, the intermediate diaphragms shall be placed perpendicular to the beams. The tops of the intermediate concrete diaphragms should be detailed 3 in below the tops of the beams. For spans with intermediate concrete diaphragms, the slabs shall not be poured until a minimum of seven days after the diaphragms are poured or until the diaphragm concrete reaches a compressive strength of 3 ksi.

In Item 3 of Section 17.3.6 of the *Manual*, the last sentence of the second bullet item shall be deleted and replaced with the following sentence:

Unless required by design, intermediate diaphragms may be omitted in the staging bay of prestressed concrete beams.



These revisions shall apply to all projects where design and detailing have not been substantially completed.

*Original Signed by James W. Kendall, Jr.  
on December 14, 2011*

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