



Illinois Department of Transportation

Memorandum

To: ALL BRIDGE DESIGNERS 12.2
From: D. Carl Puzey *D. Carl Puzey*
Subject: New Bulb T-Beam Details for Improved Deck Removal
Date: April 16, 2012

The Department's 63 and 72 inch PPC Bulb T-Beams provide an economical structural solution for many bridges. However, the unique 42 inch wide top flange which tapers to a thickness of 3.5 inches at the flange edges, poses a challenge for maintaining the integrity of the beam during future deck removal.

To properly address this challenge, the contractor should recognize that their typical procedure for deck removal may need to be altered in order to protect the beams from damage. Alternative deck removal systems and procedures, which may require more time and effort, have demonstrated that the beam integrity can be maintained during deck removal.

The Department has also investigated the interface shear design requirements between the deck and the beam and has determined that the outside 9 inches on each side of the Bulb T-Beam flange, the thinnest most vulnerable portion, could be debonded and still satisfy the beam design requirements. Accordingly, base sheets PBT-4-63 and PBT-4-72 have been updated to depict this new requirement and a special provision which lists approved bond breaker materials has also been created. The updated base sheets may be found in the Prestressed Bridge Cell Library at the following link: <http://www.dot.il.gov/cell/prestressed.pdf> and the special provision GBSP 75 may be found at the following link: <http://www.dot.il.gov/bridges/gbsp.html>.

The tops of the beam flanges designated for a bond breaker will also be troweled smooth by the fabricator as directed in Section 3.4.1 of the "Manual for Fabrication of Precast Prestressed Concrete Products". The bond breaker, however, is applied by the contractor after the beams have been erected and just prior to the installation of the bridge deck reinforcement. The sequence and timing is intended to provide better safety measures due to the slick surface of the bond breaker.

This Bulb T-Beam detail improvement, along with improved contractor deck removal efforts, should better assure owners of successful bridge deck removal without beam damage. This policy shall be implemented on all applicable projects beginning with the August 3, 2012 letting. If there are any questions regarding this policy, please contact Gary Kowalski at (217) 785-2914.

KLR/kktABD12.2bulbTbeams-20120416