



MEMORANDUM

TO: District Engineers **DATE:** January 31, 2005

FROM: William R. Cox, P.E.

SUBJECT: TxDOT New Prestressed I-Beam Standard Drawings (English)

New prestressed concrete I-beam standard drawings with an issue date of January 2005 are posted on the TxDOT web site and are available for immediate use. The designs reflected by these drawings are based on HL93 live loading as required by the *AASHTO LRFD Bridge Design Specifications*.

The scope of these prestressed concrete I-beam standard drawings is identical to the standard drawings they replace, with the addition of details accommodating 45 degree skews. A new standard drawing, IBCS, conditionally permits the formation of multi-span units with the span standard drawings. The Bridge Division encourages use of this new standard drawing to decrease the number of expansion joints. Note that the IBCS standard drawing does not apply to custom-designed prestressed concrete I-beam bridges.

Many details on the abutment and interior bent standard drawings do not adhere to policy set forth in the *Bridge Detailing Manual*. However, these detail changes enhance constructability and durability and reflect tentative detailing policy for typical prestressed concrete I-beam bridges. Key detailing changes include the following:

- Abutment wingwall geometry is identical for both cantilevered and founded wingwalls.
- The number of flexural reinforcing bars in abutment caps is increased, horizontal reinforcement in backwalls is larger in size, and horizontal wingwall reinforcement is different in length and nomenclature.
- Sloping bottom soffits in cantilevered interior bent cap ends are removed. Cap end faces have a 4:1 slope instead of being vertical.
- For interior bents, the distance between the exterior column centerline and fascia beam centerline is set in the range of 2.5 ft. to 3.5 ft.

Each abutment standard drawing accommodates both 2:1 and 3:1 header slopes, and abutments for Types A, B, and C beams are detailed on one standard drawing. These are departures from the previous standard drawings.

These standard drawings also include new versions of standard drawings IBD, IBEB, IBMS, IBND, IBTS, and MEBR(C). Minor changes are incorporated in these standard

drawings. Previous versions of these standard drawings, dated June 2004, can still be used in bridge plans at the District's option.

The *Guide to Bridge Standard Drawings*, also available on the TxDOT web site, has been updated to include a section on prestressed concrete I-beam standard drawings. This section provides guidance on plan preparation for use with these standard drawings.

Prestressed concrete I-beam and other standard drawings are available from the Bridge Standards (English) web pages in MicroStation® "dgn" and Adobe® Acrobat® PDF formats. Please distribute this information to the appropriate district staff and area offices as well as consulting engineers working on TxDOT projects.

If you have questions or comments concerning these standard drawings, please contact John M. Holt, P.E., at (512) 416-2212, or Jon T. Ries at (512) 416-2191.

Note: Original signed by William R. Cox

cc: Federal Highway Administration
Bridge Design Consultants
Administration
Division and Office Directors
Directors of Transportation Planning and Development
District Bridge Engineers
Bridge Division Employees