



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

February 21, 2012

CIRCULAR LETTER 2012-05

LRFD DESIGN REQUIREMENTS FOR PRECAST AND CAST-IN-PLACE CONCRETE BOX CULVERTS

COUNTY ENGINEERS/SUPERINTENDENTS OF HIGHWAYS
MUNICIPAL ENGINEERS/DIRECTORS OF PUBLIC WORKS
CONSULTING ENGINEERS

The purpose of this Circular Letter is to ensure local agencies are aware of policy changes regarding new design requirements for precast and cast-in-place culverts and to revise the schedule for implementation. With the issuance of All Bridge Designers (ABD) Memorandum 11.3, dated November 2, 2011 and revised January 27, 2012 (<http://www.dot.il.gov/bridges/ABD113.pdf>), IDOT provided policy for the implementation of AASHTO Load and Resistance Factor Design (LRFD) for the design of both precast and cast-in-place culverts.

The All Bridge Designers Memorandum 11.3 indicates that beginning with the January 20, 2012 letting, all precast concrete box culverts and precast extensions of existing culverts shall utilize LRFD by applying the standard designs of ASTM C 1577. Similarly, beginning with the June 15, 2012 letting, cast-in-place concrete box culverts and cast-in-place extensions of existing culverts shall be designed according to the latest version and interims of the AASHTO LRFD Bridge Design Specifications.

For precast box culverts on the local system, the LFD design specifications may be used at the local agency's discretion up to the June 15, 2012 letting implementation date. If LFD design is used, a special provision must be added to the contract. It should indicate the following:

Precast concrete box culvert sections and precast end sections shall be according to the requirements of AASHTO M 273 (M 273M) when the design cover is less than 2 feet but no less than 6 inches, and AASHTO M 259 (M 259M) when the design cover is 2 feet or greater but limited to maximum design covers shown in the tables.

This special provision will address the changes in the requirements for precast box culverts found in the IDOT Standard Specifications for Road and Bridge Construction, adopted January 1, 2012, that implemented the LRFD design specifications. No special provision is required for cast-in-place boxes.

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The advantages of economical design and reduced time of construction can be achieved through the use of precast concrete box culverts in many situations. Standard configurations should be used whenever possible. If the closest standard configuration is too tall for a specific application, consider setting the box invert deeper or using more culvert barrels of a shallower depth before using a non-standard configuration.

If you have any questions regarding this Circular Letter, please contact Jack Elston at (217) 785-8748 or jack.elston@illinois.gov.

Sincerely,



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Bryan Smith, Township Officials of Illinois
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