

Bureau of Information Systems Application Development Division

BXLRFD

No. 008
May 19, 2008

Release of Version 2.0.0.0

The Department's LRFD Box Culvert Design and Rating Program (BXLRFD) has been revised as described on the attached Summary of April 2008 Revisions – Version 2.0.0.0.

The new program has been placed on PENNDOT servers for use by the Central Office and Districts. Consultants and others, who have a current license agreement for the BXLRFD Version 1.4.0.0 can obtain BXLRFD Version 2.0.0.0 by paying the license update fee of \$500 for private organizations and \$50 for governmental agencies. Updates for BXLRFD Version 1.3.0.5 or 1.3 will require an update fee of \$1,000 for private organizations and \$100 for governmental agencies. Updates for BXLRFD Version 1.2, 1.1 or 1.0 will require an update fee of \$1,500 for private organizations and \$100 (not \$150) for governmental agencies. No update fee is required for Federal and State Transportation Agencies.

The forms for Software Update Request and Request for PennDOT's Engineering Software License can be downloaded from the web site at <http://penndot.engrprograms.com>.

Please direct any questions concerning the above to:

Shyh-hann Ji, P.E.

PENNDOT Bureau of Information Systems
Application Development Division

Phone: (717)783-8822 | Fax: (717) 705-5529

e-mail: sji@state.pa.us

Attachment

SUMMARY OF APRIL 2008 REVISIONS - VERSION 2.0.0.0

Since the release of BXLRFD Version 1.4.0.0 several revision requests and user requested enhancements have been received. This release of BXLRFD Version 2.0.0.0 corrects the following known problems and provides enhancements.

Input Revisions

1. The Fatigue Dynamic Live Load allowance Lower limit has been revised on the LDC command from 0.75 to 1.0 (Request 117).
2. The number of special live load axles allowed in the program has been increased to 80 axles with 79 spacings. (Request 120)
3. The program has been revised so the fill height of a culvert may be left blank. The fill height will be interpreted as zero if left blank. (Request 144)

Output Revisions

4. The description of the axle loads in the "Summary of Input File" report has been revised to no longer indicate a "1" or an "n" after the axle load. (Request 141)
5. The "Serviceability Spacing Summary" output table has been revised to prevent a failure indicator from appearing when no failure actually occurs. (Request 148)
6. The foundation pressure tables have been revised to show limit state information and foundation pressure for the case when live load was not present. Previously the program only displayed the Strength-I foundation pressure and the limit state was not identified. (Request 149)
7. A footnote indicating the design thickness of the slab has been added to the Gross Section Properties table. It will appear beneath the bottom slab output when a fish channel is present. (Request 153)
8. The Concrete Shear Capacity on the Shear Design output table is now displayed as the factored concrete shear capacity. Previously the program showed the gross concrete section shear capacity. (Request 154)

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Calculation Revisions

9. A U-channel design and analysis capability has been added to the BXLRFD program. (Request 027)

10. The program has been revised to include fish channel concrete in the calculation of dead loads in the program. Previously the program would ignore the weight of the fish channel concrete. Also an issue has been fixed where the full wall weight was not being considered in the foundation pressure calculation when a fish channel is present. In addition the FSH command input checks have been revised so a user can leave the Segment Width and Height Dimensions blank for a Standard Fish Channel. Previously, the program would halt with an error if these parameters were left blank for a Standard Fish Channel. (Request 151)

User Manual Revisions

11. The Shear Design parameter name on the OUR command has been modified to be consistent in the Users Manual and the parameter definition file. (Request 116)

12. A service load stress calculation procedure has been added to the Users Manual to document how the program computes the tension stress in the reinforcement. (Request 146)

13. The crack width parameter assumption for the obsolete allowable crack control stress calculation has been removed from Chapter 2. (Request 147)

Engineering Assistant Revisions

14. The number of walls allowed on the WLR command in Engineering Assistant has been revised to three walls. Previously the WLR would incorrectly only allow data entry for two walls. (Request 160)