PENNDOT e-Notification

Bureau of Information Systems
Application Development Division

ABLRFD No. 004 December 27, 2004	**Release of Version 1.4.0.3**

The Department's LRFD Abutment and Retaining Wall Analysis and Design Program (ABLRFD) has been revised as described on the attached Summary of November 2004 Revisions – Version 1.4.0.3.

The new program has been placed on PENNDOT servers for use by the Districts. Consultants and others, who have a current license for **ABLRFD Version 1.4**, can download version 1.4.0.3 **free** of charge from our support website at http://penndot.engrprograms.com. Installation instructions are provided at the website. Updates for **ABLRFD Version 1.3 or earlier** will require **update fee** of $500 for private organizations and $50 for governmental agencies. Update Request and Ordering forms for PENNDOT's Engineering Software can also be downloaded from the website.

Please direct any questions concerning the above to:

Robert F. Yashinsky, P.E.
PENNDOT Bureau of Information Systems
Application Development Division
Phone: (717) 787-8407 | Fax: (717) 705-5529
e-mail: ryashinsky@state.pa.us

Attachment

SUMMARY OF NOVEMBER 2004 REVISIONS - VERSION 1.4.0.3

Since the release of ABLRFD Version 1.4 several revision requests and user requested enhancements have been received. This release of ABLRFD Version 1.4.0.3 contains the following revisions and enhancements.

1. The 1.4 top footing bar development length correction factor is now only applied to footing bars which have 12 in (300 mm) of concrete beneath them. The user entered development length correction factor is now only being applied once in the program. The cover for stem J-bar development length calculations is now using the correct stem clear cover value (Request 55).

2. The program has been modified to use an optimized design process for all foundation types. The optimization has decreased the amount of trial footing sizes required to find an economical design (Request 60).

3. The Users Manual has been modified to reflect the proper units for loads applied to abutments and retaining walls. The new unit conveys that the force is applied per unit of width (Request 61,128).

4. The program has been enhanced to compute shear in the heel at multiple locations to enable it to detect the maximum shear in the heel and corresponding location for both spread and pile foundation types. Also, the vertical component of the Lateral Earth Pressure is now considered a partial force being applied to the side of the footing (Request 110).

5. The unfactored vertical force to horizontal force ratio check, from DM-4 Section 6.15.1P, has been added to the program to check the Service loads on battered pile foundations. A warning will now be printed if the ratio check is violated (Requests 115).

6. The Users Manual has been modified to indicate that the Saturated Soil Density must be entered for all soil types (Request 127).

7. The Temporary Stage Horizontal Earth Pressure calculations have been restored in the program for retaining walls (Request 129).

8. The maximum bar diameter is now being correctly utilized for pile foundation analysis runs where reinforcement is specified as area per width. This revision only affects crack control spacing calculations. Also, the spacing during an area per width analysis run is now being calculated rather than using the design width as the spacing for crack control calculations (Request 130).

9. A typographical error has been corrected for a Backfill related input check warning messages (Request 131).

10. The Users Manual has been revised to better document the direction of the "Wind On Substructure" load that is applied to the substructure (Request 132).

11. Chapter 6 of the Users Manual has been revised to correct the typical range limits on the Concrete Rock Friction Angle parameter (Request 134).

12. When the bearing pressure lies entirely within the toe projection of a foundation, the program has been modified to resize the foundation during a design run, and provide a more meaningful warning message during an analysis run (Request 142).

13. The program is now choosing the optimum footing size with the smallest toe projection rather than the largest toe projection. Also, a range of acceptable toe projections is now shown in the Footing Geometry output table during design runs (Request 146).

14. Original Ground Slope input check warning messages have been revised to provide a more informative message. Also, duplicate messages have now been eliminated (Request 154,155).

15. The Users Manual has been modified to show the correct Equation 4 in Section 3.6.1(Request 157).

16. The load factors in Section 3.3.4 Tables 1 and 2 of the Users manual have been corrected to match the program (Request 161).

17. The upper limit of the Live Load Upward force on the DLL command has been changed to error if a value above zero is entered. This change was made to prevent the force from being improperly applied by the program (Request 162).

18. The water differential warning messages have been enhanced to more clearly indicate that 3 ft (1 m) is the typical value used for design when the differential is greater than 3 ft (1 m) (Request 165).