PennDOT e-Notification

Bureau of Business Solutions and Services
Highway/Engineering Applications Division

ABLRFD	
No. 011 May 10, 2010	**Release of Version 1.9.0.0**

The Department's LRFD Abutment and Retaining Wall Analysis and Design (ABLRFD) program has been revised as described in the attached "Summary of February 2010 Revisions – Version 1.9.0.0".

The new version has been placed on PennDOT servers for use by the Districts. Consultants and others, who have a current license agreement for **ABLRFD Version 1.8.0.0**, can obtain the updated version by submitting an Update Request form along with an **update fee of $500 for private organizations and $50 for governmental agencies**. Updates for **ABLRFD Version 1.7.0.0 or earlier** will require an **additional fee**. For ABLRFD update fee details, refer to the following link: http://penndot.engrprograms.com/home/Ordering/ABLRFD.htm. The update fee is waived for federal and state transportation agencies.

The Software Update Request form can be obtained on the PennDOT Engineering Software Support website at http://penndot.engrprograms.com by clicking on "Ordering/Updating" and, then on, "Update Form".

Please direct any questions concerning the above to:

Robert F. Yashinsky, P.E.
PennDOT Bureau of Business Solutions and Services
Highway/Engineering Applications Division
Phone: (717) 787-8407 | Fax: (717) 705-5529
e-mail: ryashinsky@state.pa.us

Attachment

SUMMARY OF FEBRUARY 2010 REVISIONS - VERSION 1.9.0.0

Since the release of ABLRFD Version 1.8.0.0 several revision requests and user requested enhancements have been received. This release of ABLRFD Version 1.9.0.0 contains the following revisions and enhancements.

Input Revisions

1. An input check has been added to the program to check if the bottom of the footing is located above the top of the rock layer. If it is, then an error message is printed in the output to provide a recommendation for how this issue can be corrected. Previously, a cryptic error message was displayed indicating a negative embedment depth. (Requests 254)

2. An input check has been added to the program to ensure that parallel reinforcement information has not been added for a spread footing analysis run. Previously, the program would provide a cryptic warning message and terminate. (Request 276)

Output Revisions

3. The program has been revised to now list the title and page number in the Specification Check Warning and Error tables for each occurrence of a warning found in the Moment Axial Interaction table. Previously, the program would only display the title and page number for the last stem location even when no problem occurred at the location. (Request 277)

4. The program has been enhanced to generate a PDF file for each output file. When possible, the PDF file contains bookmarks for easier navigation of the output. The PDF file also makes it easier to print and paginate the program output. (Request 284)

5. The program has been modified to pass a crack control warning for analysis runs to the specification check output when applicable. Previously, the program was not reporting this warning. (Request 292)

Loading Revisions

6. The Wind on Substructure force has been revised to distribute the user entered force vertically along the face of the wind area. For stem locations, the program will determine the applicable wind area and use the magnitude of the calculated distributed force to determine the wind load. The Wind on Substructure force is now applied for both the Temporary and Final stages and can be applied in both the positive or negative direction. Previously, the program would incorrectly calculate the Wind on Substructure moment for the Stem Locations. (Request 286)

Settlement Revisions

7. The program has been revised to prevent maximizing the H/B_{eff} ratio when calculating the Elastic Settlement Factor in Figure 3.4.1.3.1-1 for a Strong over Weak Layer soil condition. Previously, the program would maximize this ratio which could lead to large calculated settlement values for Strong over Weak Layer soil conditions (Request 287)

Serviceability Revisions

8. The program has been modified to account for 1 inch of foundation unevenness at the bottom of the footing when calculating the crack control spacing. Previously the program would use the entire cover dimension when calculating the crack control spacing. (Request 291)

General Changes

9. The ABLRFD program has been revised to no longer support SI unit input files. This is based on a decision by AASHTO Subcommittee on Bridges and Structures to no longer publish updates to the SI unit version 2007 AASHTO LRFD Bridge Design Specifications. (Request 290)

Pile Foundation Changes

10. The pile pattern design algorithm was investigated to determine why changing the percent battered piles in the last row for a design run would cause the program to change from a 2 row pattern to a 4 row pattern. It was determined that including battered piles in the last row increased the calculated pile spacing in row 1 which caused the pile pattern to fail for punching shear and meant the program rejected the pattern. A future revision to ABLRFD will attempt to reduce the pile spacing in row 1 when a reinforcement failure is detected in a effort to generate a good design for the pattern. The workaround is to make two design runs, one with 0% battered piles in the last row, and one with 50% battered piles in the last row, and to use the design with the least number of pile rows. (Request 288)

11. The program has been revised to now resize a pile foundation design if the ratio of the unfactored vertical and horizontal service loads is less than 3.5. Previously, the program would only provide an output message that the criteria had failed without changing the foundation design. Also revised program to perform ratio check for caisson foundations during analysis runs. (Request 115)