BRIDGE AUTOMATED DESIGN AND DRAFTING SOFTWARE

SUMMARY OF OCTOBER 2006 REVISIONS - VERSION 3.1.2.0

Since the release of BRADD Version 3.1.1.0, several problem reports and user perfective maintenance requests have been received. This release of BRADD Version 3.1.2.0 contains the following revisions:

1. Version 1.3.0.1 of the PENNDOT BPLRFD program was implemented. (VI 2658)

2. Version 1.4.0.4 of the PENNDOT ABLRFD program was implemented. (VI 2766)

3. Version 1.4.0.0 of the PENNDOT STLRFD program was implemented. The following decisions were incorporated: (VI 2735)

    a. BRADD will still only use Live Load Option 'A'.

    b. BRADD will always set the Span-to-Depth Ratio Check input parameter to 'Yes'.

    c. BRADD will not implement the 'Continuous Brace' command.

4. Corrected issues related to the shear stirrup spacing for plank beams. (E-Notification No. 008, VI 2656)

5. Corrected the stationing for the edge of deck thickness reported in the BRADD geometry output. (E-Notification No. 009, VI 2655)

6. Corrected various misalignments in the DXF version of the BRADD Rebar Schedule. (VI 2654)

7. Created a new file to the BRADD output set that can be imported into PENNDOT's AutoTAB program. (VI 2534)

8. Added an option on the BRADD Abutment and Superstructure input menus to permit the request for additional LRFD output. The option permits either "Required Design Output" or "All Design Output". (VI 2410)

9. Changed the reinforcement bar schedules to sort by bar type, location and by bar size. (VI 2257)

10. Added the overall width to the BRADD Typical Section detail. (VI 2203)

11. Added the individual roadway and watertable dimensions to the BRADD General Plan detail. (VI 2203)

12. For precast channel beam superstructures changed the note on "Abutment x Details 3" sheet from "BEAM SEAT ELEVATION AT POINT E SEE BEARING SEAT DETAIL" to "CONSTRUCTION JOINT FOR CHEEKWALL SHOULD BE LOCATED AT THE BEARING SEAT. SEE BEARING SEAT DETAIL FOR ELEVATIONS". (VI 2160)

13. Divided the 'Project Information' BRADD input menu into two submenus; 'Project ID' and 'Project Control'. The 'Project Control' menu was created to contain information related to all components of the BRADD job. (VI 2141)

14. Added a new input item to the Project Control menu. If set to "Yes" This item will consolidate barmarks if they are the same size, type, and length. (VI 2141)

15. For adjacent beams, added the beam seat elevation at the construction joint to the elevation view of each abutment. (VI 2106)

16. Added separate input items for the "Temporary/Final Live Load Surcharge (LS)" to the abutment wingwall menus. Previously, this item was input once for the entire abutment. (VI 1990)

17. Modified BRADD to enforce the web depth restriction on stiffener spacing for fascia girders. BRADD now provides two sets of stiffener spacing, one each for fascia and interior girders. (VI 1880)

18. Added a new input item to allow the user to request stakeout output information in either "Station/Offsets" or "X-Y Coordinates". (VI 1735)

19. Modified the BRADD abutment typical section details to call out the limits of the Class A and Class AA concrete. (VI 1680)

20. Modified the abutment typical section details to call out the dimension for the corbel on the top of the abutment stem as 'Varies' (MIN 450 (1'-6"); MAX xxx). (VI 1680)

21. Corrected the calculation for the weight of concrete end diaphragms for the case of steel girders on abutments without backwalls. Previously, the slope of the diaphragm was not accounted for. (VI 2652)

22. Removed the weep holes for shear blocks on abutments without backwalls. (VI 2646, VI 2713)

23. Modified the BRADD-generated input files for PSLRFD and STLRFD to provide in the input file comment fields, the number of beams used for the distribution of the pedestrian load and sidewalk dead load on the PLD command. (VI 2635)

24. Added a new column to the sole plate table showing a new dimension 'C'. This value represents the thickness of the sole plate at the centerline of bearing. Also added a note to the bottom of the table indicating that the value of the thicker edge of the sole plate is rounded to the nearest 1/32" (1 mm). (VI 2633)

25. Modified the BRADD safety wing details so that the width of the safety wing beneath the barrier does not taper. (VI 2622)

26. Moved the common title block information from the individual DGN files to the master DGN files. (VI 2615)

27. Corrected the General Plan detail to properly show the barrier with the 10 degree flare back. (VI 2612)

28. Corrected various problems with the keying in of BRADD directory path names on the dialog boxes with the GUI that open files. (VI 2605)

29. Modified BRADD to allow for recalculation of costs without rerunning the entire job. Previously, if a unit cost was modified, the entire job would need to be rerun to see the effects of the change. (VI 2573)

30. Modified BRADD to change the way user input lane widths are handled. The change is described in detail in Chapters 3 and 6 of this manual. (VI 2557)

31. Modified the shear block reinforcement to comply with the changes in BD-655M (sheet 1 of 2) dated July, 2005. (VI 2696)

32. Modified the message reported to the user when the maximum deck overhang length is too small based on the checks made by BRADD. (VI 2747)

33. Modified the BRADD "Help -> BRADD on the Web" to open a web browser to the BRADD web site. The previous version of BRADD had this option disabled. (VI 2746)

34. Corrected the menu input so that the input for "Bearing Capacity Factor N(gamma(q)) Layer 1-Right Wingwall Panel 2" is correctly enabled and disabled depending on the input for "Footing Near Slope-Right Wingwall Panel 2". (VI 2745)

35. Corrected a problem that caused BRADD to crash for spread superstructures with a horizontal curve when the stations of the corners of the slab at an abutment are close in value. This occurs at an abutment when the radial line of the horizontal curve is parallel to or close to parallel to the c.l. of bearing at that abutment. Provided a zero sheet note for the user to check the deck reinforcement for this condition. (VI 2737)

36. Publication 408/2003 (Specifications), Change No. 6 (October, 2006) and the Construction Items Catalog (Pub. 7) was added to the BRADD 'Help' menu. (VI 2734)

37. Added the latest version of the BC/BD standards (July, 2005) to the BRADD 'Help' menu.

38. Strike-Off Letter SOL 431-06-01 was added to the BRADD 'Help' menu. (VI 2733)

39. Modified BRADD to include only 1 test pad (at the expansion bearing) for the entire bridge in accordance with PTM 312 (June 2003) which specifies 1 in 50 regardless of the pad thickness. Previously, BRADD included 1 test pad for each bearing type (fixed and expansion). (VI 2728)

40. Corrected a problem that caused the generation of abutment cheekwalls that were excessively large. (VI 2726)

41. Corrected an installation problem that excluded two files needed to properly run BRADD (Richtx32.ocx and shdocvw.dll). (VI 2725)

42. Added the option of an 'Undefined' input choice to indicate that a radio button option (e.g. Yes/No choice) has not yet been input. (VI 2724)

43. Corrected the longitudinal length calculation for barrier bars that were incorrect for cases when the slab corners are cutoff due to the skew angle. (VI 2723)

44. Updated the BRADD 'Supplemental Drawing List' in accordance with changes made in the PENNDOT BC/BD standards, July 2005. (VI 2722)

45. Corrected various problems in the BRADD Users Manual and Help. (VI 2717, VI 2704, VI 2702, VI 2701, VI 2547, VI 2021, VI 2750, VI 2685, VI 2708, VI 2739, VI 2758, VI 2759)

46. Corrected a problem in BRADD for setting the minimum pad thickness when the beams are dapped. (VI 2714)

47. Modified BRADD for the calculation of the shear blocks. These changes are reflected in the revisions described in Chapter 3 under the section "Compute Seismic". (VI 2713)

48. Corrected an error in the wingwall details related to the line work and dimensions for the barriers on the cheekwalls. (VI 2709)

49. Reinforcement for the hooked bars in safety wings was modified in accordance with the changes in BD-622M and BD-624M (July, 2005). The hooks are now shown horizontally which changes these bar types from a 3 dimensional bar to a 2 dimensional bar. (VI 2707)

50. The hooked bars in the safety wing are now extended into the backwall and stem by the typical hook development length described in BC-736M. (VI 2707)

51. The metric wingwall barrier reinforcement spacing requirement was changed from 3050 mm to 3000 mm from each end of an expansion joint in accordance with BD-622M and BD-624M (July, 2005). (VI 2707)

52. Modified the BRADD calculation for the S7 slab bar in accordance to changes made in BD-601M (July, 2005). These changes are discussed in detail in Chapter 3 of this manual. (VI 2706)

53. Modified the I-Beam cross section detail to show the stirrup in the bottom flange 'crossing' in accordance with a change in BD-662M (July, 2005). (VI 2700)

54. Changes were made to various details for adjacent and plank beams in accordance with changes made in BD-661M (July, 2005). (VI 2699)

55. Added a zero sheet note to indicate that the designer must check the need for a temporary beam retainer as shown in BD-655M, sheet 2 of 2 (July, 2005). (VI 2697)

56. Modified BRADD to include exterior diaphragms at 1/3 points for Prestressed I-girder span lengths greater than 160' (48000 mm) in accordance with BD-651M, sheet 1 of 2 (July, 2005). (VI 2694)

57. Modified the weephole reinforcement in accordance with the changes in BD-621M (July, 2005), sheet 2 of 2. (VI 2693)

58. Removed the HT barrier post spacing details that had been provided in the previous version of BRADD in accordance with a change in BD-615M (July, 2005). (VI 2692)

59. Modified BRADD to allow span lengths greater than 50' (15000 mm) for steel beams on abutments without backwalls in accordance with changes made in BD-611M (July, 2005). (VI 2691)

60. Provided additional Dapping Output in the superstructure controller. (VI 2688)

61. Corrected a problem that caused the disclaimer for the RC standards to appear twice when accessing the standards through the BRADD Help menu. (VI 2684)

62. Modified the calculation of the weight for SIP forms to exclude the overhang for the fascia beam and to use the correct width of beam for spread box beams. (VI 2683)

63. Modified the full depth end diaphragm detail at the expansion end to move the transverse reinforcement down to account for the paving notch. (VI 2680)

64. Modified the units for "DL1 ROTATION MOVEMENT", "DL2 ROTATION MOVEMENT", and "LL ROTATION MOVEMENT" on the "ELATOMERIC BEARING DETAILS" sheet from 'feet' to 'inches'. (VI 2679)

65. Corrected a problem with the length of the vertical bar in the front face of the safety wing. Previously this bar was incorrectly called out with the same bar mark as that of the back face. (VI 2677)

66. Modified the length calculation for footing bars in the wingwalls to use the correct clearance. (VI 2675)

67. Modified the sheet generation routines to provide some messages back to the user when the design drawings are being generated. (VI 2671)

68. Corrected a problem in BRADD by placing bars in the end of the slab, parallel to the skew, for superstructures that have abutments without backwalls. The BRADD slab detail now conforms to BD-656M, Sheet 2 of 4 (July, 2005). (VI 2670)

69. Provided additional output in the BRADD superstructure controller output file that provides additional information related to the parameters BRADD uses for slab design according to BD-601M (July, 2005). (VI 2669)

70. Modified the BRADD 'Seismic Design Log Files' output review dialog box to properly filter the correct seismic output for the currently loaded job. (VI 2668)

71. Modified the BRADD debonding table. (VI 2663)

72. Corrected a problem with dimension arcs that occurred intermittently in DXF files. (VI 2662)

73. Corrected a problem in BRADD that caused the deck thickness of the slab for bridges with sidewalks to be less than the minimum slab thickness. The method is described in detail in Chapter 3 of this manual. (VI 2607)

74. Modified the BRADD steel diaphragm details in accordance with BC-754M (July, 2005) related to the reversal change of 'typical' and 'alternate' connections. (VI 2703)

75. Modified the concrete diaphragm details to clarify the reinforcement splice lengths. (VI 2738)

76. The dead load for the raked concrete underneath a raised sidewalk was moved from the PLD command for the STLRFD and PSLRFD input files generated by BRADD to the DLD command. The load is now applied as a DC1 load rather than 'Sidewalk Dead Load'. (VI 2606)

77. Modified BRADD to taper the edge of deck if the edge of deck thickness is greater than T+ 2" (50 mm). (VI 2606)

78. Modified BRADD to epoxy coat all dowel bars in accordance with changes in BD-656M (July, 2005). (VI 2698)

79. Modified BRADD to make the centerline of diaphragm dowels and the centerline of bearing coincidental. As a result of this change, BRADD was modified to use a 1' (300 mm) minimum when calculating the diaphragm thickness. Previously the diaphragm thickness was set as a constant 1' (300 mm). (VI 2698)

80. Corrected a problem that prevented the bar scale cells from being placed in metric drawing DXF files. (VI 2660)

81. For spread superstructures, modified the internal lower limit in BRADD for the distance from the centerline of roadway to the right fascia stringer to 0.0' (0 mm). Previously the lower limit had been 3' (900 mm). Reworded messages for this type of error to provide more meaningful information to the user. (VI 2667)

82. Modified the rebar schedule to detail the varying increments for all legs of a rebar. (VI 2672)

83. Modified BRADD details and documentation to provide a consistent labeling of beams/girders and beam seats/bearing seats. (VI 1526)

84. Corrected an issue with HP pile list in BRADD as described in E-Notification No. 012. In the previous version of BRADD the HP pile list in the pull-down for the 'Pile Size' input did not match the available piles given in Publication 7 (Construction Items Catalog). (VI 2799)

85. Modified the output for the overhang on an adjacent beam. (VI 2803)

86. Corrected an issue in the abutment quantity calculations that caused the weight of the epoxy coated seismic tie bars in the footing to be added to the non-epoxy coated bars. This error occurred when the user selected 'Yes' for the epoxy coated footing reinforcement input. (E-Notification No. 013, VI 2820)

87. Modified the transverse slab bars in the adjacent box beam bridge to include hooks at the end as per BD-661M. (VI 2828)

88. Modified the adjacent box beam details to reflect the changes in BD-661M (July, 2005) related to the horizontal shear reinforcement. (VI 2837)

89. Corrected an error in the BRADD graphics system that caused BRADD to crash for certain geometry configurations. (VI 2839)

90. Added database version numbers to the BRADD 'Help About' box. (VI 2840)

91. Added a zero sheet note to indicate that BRADD does not account for the additional deck design procedures listed in BD-601M (July, 2005) when a sound barrier load is added. (E-Notification No. 014, VI 2842)

92. Modified deck transverse reinforcement for spread superstructures with a tangent deck and a skew angle less than 75 degrees. (E-Notification No. 015, VI 2855)