BRIDGE AUTOMATED DESIGN AND DRAFTING SOFTWARE

SUMMARY OF FEBRUARY 2021 REVISIONS - VERSION 3.2.6.0

Since the release of BRADD Version 3.2.5.0, several operational issues have been addressed. This release of BRADD Version 3.2.6.0 contains the following revisions:

1. The 2016 Edition of the BC Standards (Change 3, February 2021) have been incorporated into BRADD. (TFS 5624)

2. The 2016 Edition of the BD Standards (Change 3, February 2021) have been incorporated into BRADD. (TFS 5636)

3. The 2010 Edition of the RC Standards (Change 7, February 2021) have been incorporated into BRADD.

4. BRADD has been updated to use ABLRFD version 1.17.0.0 (December 2019) (TFS 5656)

5. BRADD has been updated to use BPLRFD version 1.9.0.0 (August 2019) (TFS 5637, 5638)

6. BRADD has been updated to use PSLRFD version 2.13.0.0 (December 2019) (TFS 5639, 5658)

7. BRADD has been updated to use STLRFD version 2.6.0.0 (August 2020). (TFS 5640, 5677)

8. The MASH Barrier updates, from the BD & BC Standards (Change 3, February 2021) have been incorporated into BRADD. (TFS 5556, 5671)

9. BRADD has been updated to generate design files and PDFs using Bentley's Open Bridge Modeler CONNECT Edition. Due to Bentley restrictions other Bentley products such as OpenBridge Designer or OpenRoads Designer currently may not be used by BRADD for generating design file drawings. (TFS 5670)

10. BRADD now installs eight Engineering TrueType Fonts which were provided by Bentley so they can be used when BRADD generates drawings using MicroStation CONNECT or OpenBridge Modeler CONNECT Editions. Refer to the "Design File Fonts" Section in the BRADD User Manual in Chapter 4. (TFS 5553)

11. For Safety Wings, BRADD now calculates and displays a concrete volume below the base of approach-slab optional construction joint on the Safety Wing SECTION F-F detail. This value can then be used to adjust Class AA and Class A concrete quantities. (TFS 5645)

12. The BRADD GUI has been enhanced so that the database update process can replace text strings. This is used when a selection item for a database value is revised (eg. "Typical" barrier becomes "42_F_Shape" barrier). (TFS 5665)

13. An error in STLRFD that caused a designed plate girder to have a rating factor less than 1.0 has been resolved. (TFS 5518, STLRFD Request 794)

14. BRADD was revised to prevent the program from stopping with an error when generating Diaphragm Details sheets for a PA Bulb Tee design that has shear blocks. (TFS 5622)

15. The BRADD Graphical User Interface (GUI) Export operation (creation of a BRT file) ended with a false error message. This has been resolved. (TFS 5625)

16. During an adjacent box beam run for a specific bridge, the incorrect overhang was being passed to PSLRFD. This has been resolved. Also, BRADD now reports the final values of Beam Spacing, Overhang Distance, Beam Size, and Number of Beams in the superstructure controller design output file, when a bridge cannot be designed. (TFS 5626)

17. When horizontal shear controls the prestress box beam design, BRADD will now detail, when necessary, box beams with A1, A2, and A3 stirrup bars at a single location. (TFS 5627)

18. For a specific BRADD job with Integral Abutments, the "Pile Cap Transverse Reinforcement Information" table was not being placed. This has been resolved. (TFS 5628)

19. With the inclusion of BD-601M, Change 2 and BC-736M, Change 2, the rebar splice and development lengths have changed. These changes have been incorporated into BRADD designs and details. (TFS 5629, 5630)

20. For 17" spread box beams for a specific job, the diaphragm width at the expansion end was being detailed as too large a dimension. This has been resolved. (TFS 5631)

21. BRADD is now displaying an AA Concrete quantity for the shear block volume in the expansion end abutment quantities in the BRADD abutment quantity output file. This same quantity has been removed from the AA Concrete quantity value for the appropriate End Diaphragm quantity in the superstructure output quantity output file. (TFS 5632)

22. The integral abutment tapered wingwall elevation detail shows a splice along the bottom of the tapered wingwalls from the pile cap to the wingwall. When calculating the rebar lengths for the bars along the bottom of the tapered wingwall, a splice length 2'-9" is now used. (TFS 5641)

23. BD-601M, Concrete Deck Slab, Sheet 1. BRADD has a new menu input which allows the user to select a deck top cover adjustment (+¼", 0", -½") (TFS 5643)

24. BD-618M, Concrete Vertical Wall Bridge Barrier, Sheet 8. For Adjacent Box Beams the maximum allowed overhang with Vertical Wall Barriers has been reduced from 8" to 4" in the barrier cross section

over the deck. This means a max of 12" overhang in the end block when a vertical barrier terminates on the deck (down from 15"). (TFS 5644)

25. BD-655M, Sheet 1. BRADD now details short vertical diaphragm bars between I-Beam Flanges. (TFS 5647)

26. BD-601M, Sheet 1. The BRADD barrier menu help has been revised to indicate that the Alternate Barrier (32" F-Shape Barrier) has been accepted by the FHWA as a TL-3 barrier designation. (TFS 5642)

27. The horizontal leg of the barrier bar that projects into the deck has been changed to 1.5' long for Vertical Wall barriers. (TFS 5642)

28. BD-655M, Sheet 1. The threaded inserts note that appears on the BRADD drawings has been revised as indicated in the standards. (TFS 5642)

29. Callouts and references on the BRADD drawings and BRADD menu of "Bituminous Pavement" have been changed to "Asphalt Pavement". (TFS 5642)

30. BD-662M, Sheet 1. (TFS 5642)

    a. The callout "See Note 4" has been changed to "See Note 8" on the BRADD Beam Elevation detail and the Notched End Reinforcement detail for prestressed I-Beams.

    b. For AASHTO I-Beams, the horizontal lap on the confinement reinforcement in the bottom flange has been changed to 1'-4" MIN.

31. BD-656M, Sheet 2. The horizontal leg of the L bar at the end of deck has been changed to be 1'-11" in length in the BRADD drawings. (TFS 5642)

32. BD-661M, Sheet 4 (TFS 5648)

    a. On the BRADD drawings Beam Section detail, the shape of barrier bar that extends into the adjacent box beam has been revised. Also, the projection distances of the barrier bar into the barrier, and into the adjacent box beam have been revised to match the standard.

    b. On the BRADD drawings Beam Section detail, a "*" note was added to the adjacent beam cross section detail to indicate the barrier bar projecting into the beam shall extend into the beam a minimum of "* or ¼" above bottom slab thickness of the beam".

c. The following note was added to the BRADD drawings Beam Section detail. "Top of bar should extend 1'-4 ½" minimum from the top of deck into barrier and horizontal or vertical legs into beam should be 1'-4" minimum".

33. BD-661M, Sheet 6. The drain hole is now called out on the "Plan - Beam End Longitudinal Reinf." detail for spread box beam bridges. (TFS 5649)

34. BD-667M, Sheet 3. For Integral Abutments, cover dimensions between the pile and the reinforcement have been added to the BRADD drawing "Section E-E" detail which is a horizontal section through the pile cap. (TFS 5650)

35. BC-754, Sheet 1. The BRADD Steel End Diaphragm details, Note A has been updated to refer to ASTM F3124 GRADE A325 bolts. (TFS 5633)

36. BC-788M, Sheet 5. (TFS 5635)

a. BRADD has been revised to calculate the quantity of membrane waterproofing for abutments with backwalls. Previously, BRADD only calculated the membrane waterproofing for abutments without backwalls.

b. BRADD has been revised to consider the height of shear blocks when calculating the quantity of membrane waterproofing for abutments with shear blocks.

37. BC-755M, Sheet 1 & 2. A callout "½" Min. Bolt Thread Protrusion" for the anchor bolt extension has been added for elastomeric bearing pad details in BRADD. (TFS 5634)

38. PSLRFD now reports a warning message for analysis runs with debonding of strands for consecutive rows of the webs of box beams. BRADD now adjusts its crack control debonding strand patterns to conform. (TFS 5652, PSLRFD Request 610)

39. BRADD now sets the horizontal stirrup shear reinforcement area for composite plank beams to 0.8 in2 because BD-661M, Sheet 7 shows four locations where the #4 plank beam stirrup bar crosses the intersection of the plank beam and the deck. (TFS 5653)

40. A problem has been corrected when a BRADD GUI window is expanded from the Windows task bar after the number of available desktop screens had been reduced. Previously, the GUI window would be off the screen. Now, the GUI recognizes this and centers the GUI window onto one of the screens. (TFS 5654)

41. While generating certain BRADD details, "Invalid Scale Programming Error" messages were appearing in sheet generation log file. This issue has been resolved. (TFS 5655)

42. For Integral Abutments, the approach slab Sections C-C is now oriented correctly. Previously, for certain jobs the detail was oriented in the wrong direction. (TFS 5657)

43. PSLRFD v2.13.0.0 now includes the GSC input command to perform Girder Stability Checks for Prestress I-Beams. BRADD now displays an input menu for P/S I-Beam superstructures to enable the use of this command. (TFS 5659)

44. Two new menu input fields have been added to BRADD to allow the user to designate lightweight concrete for the deck. (TFS 5678)

45. The 'Integral Sidewalk' has been renamed to 'Typical Sidewalk' as per BD-601M, Change 1. (TFS 5679)