

Bureau of Project Delivery Bridge Design and Technology Division

BRADD

No. 045
December 5, 2016

Release of Version 3.2.3.0

PennDOT's Bridge Automated Design and Drafting Software (BRADD) has been revised as described in the attached Summary of November 2016 Revisions - Version 3.2.3.0. This version will be distributed as a free update to all existing BRADD v3.2.1.0 and v3.2.2.0 licensees who submit a completed Update Form located in the Ordering/Updating section on the BRADD Software website at <http://bradd.engrprograms.com/>. Fill in the Update Form with \$0.00 for the Update License Fee.

Please note that the software will no longer be provided on a CD. Once the Update Form is received an e-mail will be sent with download instructions. The new installation will require a License Key that will be provided in the e-mail. A valid e-mail address must be provided on the Update Form in order to receive the download instructions.

Consultants and others with a license for version 3.1.6.2 and earlier can obtain BRADD Version 3.2.2.0 by paying an update license fee of \$1,590 (including tax) for Private Organizations, \$1,590 (including tax) for Educational institutions for Consulting Use, \$150 (no tax) for Educational institutions for Educational Use, \$150 (no tax) for Local Government Agencies, \$159 (including tax) for Foreign Governmental Agencies, and no fee for Department Executive Agencies and State Transportation Agencies outside Pennsylvania. Use the Update Form located in the Ordering/Updating section on the PennDOT BRADD Software website at <http://bradd.engrprograms.com/>.

Consultants and others without a license can obtain BRADD Version 3.2.2.0 by paying the license fee of \$5,300 (including tax) for private organizations and \$530 (including tax) for governmental agencies. Use the Ordering Form located in the Ordering/Updating section on the PennDOT BRADD Software website at <http://bradd.engrprograms.com/>.

Archived copies of all previously distributed e-Notifications can be obtained from the PENNDOT BRADD website at <http://bradd.engrprograms.com/home> and clicking on "e-Notification" and then "Mailing List Archives."

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SUMMARY OF NOVEMBER 2016 REVISIONS - VERSION 3.2.3.0

Since the release of BRADD Version 3.2.2.0 and patch release BRADD Version 3.2.2.1, several reported operational issues have been addressed. This release of BRADD Version 3.2.3.0 contains the following revisions:

1. Version 2.10.0.0 of PennDOT PSLRFD has been incorporated into BRADD. (TFS 5094)
2. Version 2.4.0.0 of PennDOT STLRFD has been incorporated into BRADD. (TFS 5091)
3. Version 1.15.0.0 of PennDOT ABLRFD has been incorporated into BRADD. (TFS 5092)
4. Publication 408/2016, Initial Edition (April 2016) and Change No. 1 (October 2016) has been included in BRADD. (TFS 5157)
5. Publication 7 (Construction Items Catalog) is no longer published and thus not included in the Pub 408/2016 included with BRADD. A "Construction Items List" link was added to the BRADD Help pulldown list containing instructions for accessing ECMS and displaying the current construction items list. (TFS 5158)
6. The ability to specify a different beam spacing for each side of the staged construction joint for spread beam superstructures with tangent geometry was added to BRADD. As part of this implementation, the staged construction menu items that were on the Deck Layout menu have been moved to the Beam Geometry & Layout menu. (TFS 5118)
7. BRADD has been enhanced to provide an option to specify that Mechanical Splice Systems will be used for all concrete reinforcement bars that cross the staged construction joint. (TFS 4303)
8. The distance between fascia beams measured at the bearing seats was incorrectly being calculated for adjacent superstructures when the two fascia beams have transverse slopes in the opposite direction (one sloped counterclockwise and the other sloped clockwise when looking ahead stations). The distance between fascia beams calculation did not include the change in offset due to the bearing pad thickness, or sole plate thickness. This problem has been fixed. (TFS 4468)
9. BRADD has been revised to correctly calculate the Prestress Beam Projection for dapped beams when there is no backwall. Previously, BRADD would use a 9" minimum beam projection which did not comply with BD-656M for Prestress I-Beams on abutments without a backwall. (TFS 4659)
10. The ABLRFD Version 1.14.0.0 program included in BRADD v3.2.2.0 reported specification check warnings as Chief Bridge Engineer warnings. This problem has been fixed in ABLRFD Version

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- 1.15.0.0 which is included in BRADD v3.2.3.0 and now warnings and failures are accurately reported. (TFS 5110)
11. It was determined that the beam Dap calculations were not being shown in the superstructure controller output file if the bearing pad design was unsuccessful. The beam Dap calculations are now shown regardless of the bearing pad design results. (TFS 5116)
 12. A problem was found in PSLRFD Version 2.9.0.0 that prevented shallow depth adjacent box beam and plank beam superstructures from being designed successfully. A workaround was made to BRADD 3.2.2.0, as described in e-Notification 043, until a corrected version of PSLRFD could be released. The corrected version of PSLRFD Version 2.10.0.0 is now included in BRADD Version 3.2.3.0 and resolves this problem. The workaround added to BRADD v3.2.2.0 has been removed. (TFS 5126)
 13. In the PA BULB-TEE BEAM elevation detail for beams without a beam notch, the 601 bars have been removed because 601 bars should not be placed when no beam notch exists. Also, the number of 405 bars to be placed has been added to this detail. (TFS 4724)
 14. In the CAMBER AND PRESTRESS TABLE detail the dimension column "D" was removed for prestressed beams with debonded strands because it is not needed. (TFS 4725)
 15. For spread beam superstructures with U-wing abutments that have no backwall and have PA Type 10M barriers, the value of "D" shown in the ACUTE SLAB CORNER EXTENSION DETAIL was corrected. Refer to the ACUTE SLAB CORNER EXTENSION DETAIL and User Manual Figures 3.A-28 and 3.A-31. (TFS 4820)
 16. A problem with integral abutment superstructures resulting in an incorrect calculation of the number of S3 reinforcement bars outside of the fascia beams was fixed. (TFS 5099)
 17. A couple of typographical errors were corrected in the menu "Consolidation of Barmarks in Pile Cap" help text. (TFS 5102)
 18. A problem was corrected where the Superstructure Design Status button on the Design/Quantities menu tab was incorrectly being disabled if the user entered approach slab lengths that violate the minimum approach slab length specified in BD-667M for integral abutment superstructures. (TFS 5103)
 19. A crash was fixed when computing wingwall pile locations for structures with a high skew angle (less than 50 degrees) and a U-wing with a small wingwall length. (TFS 5107)

20. BRADD User Manual documentation states that bridge spans lengths up to 200' can be specified. However, BRADD was allowing span lengths over 200' when entering the centerline of bearing stations at the abutments, resulting in an incorrect span length dimension on the GENERAL PLAN detail. A check was added to the BRADD GUI to prevent abutment centerlines of bearing to be specified over 200' apart. (TFS 5108)
21. A problem was corrected in the BRADD GUI / Generate tab where the list of BRADD drawings would not display in the right pane when using the PennDOT standard design file format with a single character Structure ID and a Section Number that includes the letter "J". (TFS 5127)
22. For certain adjacent box superstructures, a situation was corrected where the superstructure design is not successful, resulting in the message "%BRD(ADJCTRL)-E-DESNFAIL Good beam design cannot be found with input constraints." but ultimately displaying the contradictory "%BRD(PRES_CON)-S-DESIGNSUCCESS Design of Prestress Superstructure is successful". (TFS 5128)
23. A problem where under certain conditions (cutoff length less than the transverse length) an incorrect debonded centerline of gravity value was listed in the DEBONDING DETAIL table has been corrected. (TFS 5161)
24. A revision was made for a symmetrical Adjacent Box Beam superstructure with a normal crown cross-section so that all the transverse beam cross-slopes will now be the same. Previously, the slopes were slightly different. (TFS 4204)
25. The Slab Section detail was revised so the bottom transverse slab rebar is located to represent 1" clearance from the bottom of deck. Previously, for certain conditions, the rebar was incorrectly being placed at the bottom of the slab. (TFS 4329)
26. A revision was made to prevent a program crash for a Prestress superstructure when the "Beam Projection At Abutment" input is entered as a value larger than 12 inches. (TFS 4412)
27. BRADD was incorrectly placing the TYPICAL ABUTMENT SECTION detail for bridges with a backwall but with no paving notch. A correction has been made so that this detail will not be placed for this condition. (TFS 4428)
28. The slab corner table located below the "Slab Reinforcing Plan" detail has been revised to change the callout that appears at the ends of some lines in the table from "CUT-OFF" to "CUT-OFF DETAIL" to clarify that the dimensions for that line refer to the "ACUTE SLAB CORNER CUT-OFF DETAILS" detail shown below the table. (TFS 4462)

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29. For a specific BRADD bridge, the callout of the transverse deck bars and the callout of the fan bars at the acute corner for one end of the bridge have been fixed on the SLAB REINFORCING PLAN detail. (TFS 4687)
30. A callout on the SLAB SECTION detail has been revised for a specific adjacent box beam bridge to point to the line representing the top transverse slab reinforcement. (TFS 4708)
31. For integral abutments with a PA Type 10M barrier, Section N-N through the PA Type 10M barrier at the end of the wingwall, was corrected to show the wingwall rear face vertical, instead of sloped as with traditional abutments. (TFS 4825)
32. For certain superstructures with a horizontal curve and with a paving notch an erroneous dimension line was removed from the GENERAL PLAN detail. (TFS 4844)
33. For spread box beam superstructures, anchor bolts and spurious anchor bolt dimension lines were removed from the STRUCTURE PLAN AT END OF BEAM detail. (TFS 4876)
34. For superstructures with user-defined barrier(s), Designer Notes were added to the LEFT/RIGHT BARRIER details to indicate on the plans that the missing detail must be added by the user. (TFS 5062)
35. The stake-out plan detail was updated to match the requirements of DM-4 which indicates the dimensions shall be shown in 'feet' to 2 decimal places. Previously the dimensions were shown to 3 decimal places.
36. The table of work point coordinates for the stake-out plan was updated to match requirements of DM-4 which indicates the coordinates shall be shown to 4 decimal places. Previously the coordinates were shown to 3 decimal places.