

**Bureau of Design  
Engineering Computing Management Division**

**BRADD**

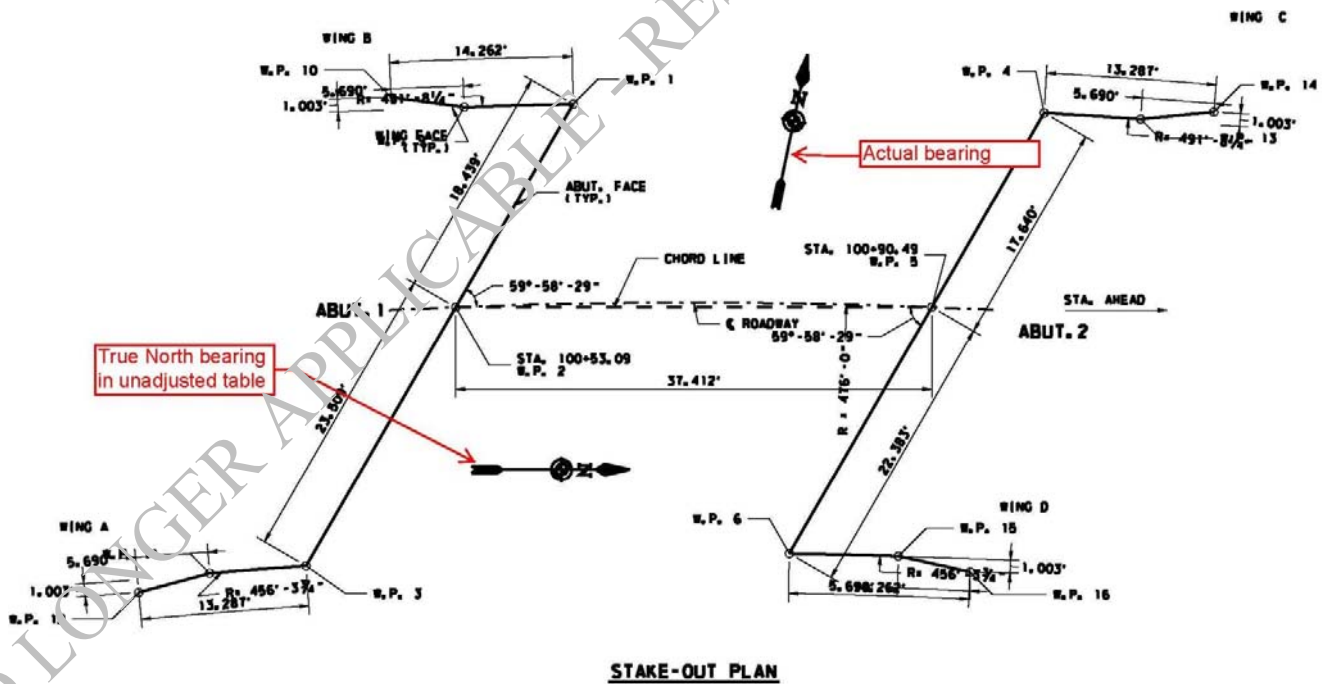
No. 026  
February 12, 2010

**Work Point Coordinates for Superstructures With  
Integral Abutments and Beam Offsets for  
Adjacent Box Beams**

Several minor operational issues have been discovered since the latest release of the BRADD program (version 3.1.4.0, August 2009). The issues affect the work point coordinates table on the stake out plan drawing for superstructures with integral abutments, and the beam offset dimensions for adjacent box beam superstructures. The issues, their symptoms and any workarounds are listed below.

1) **Problem Statement:**

The work point coordinates for superstructures with integral abutments that appear on the stake out plan drawings were not being rotated to the bearing of the back tangent reference line. The station and offset workpoint values were correct.



NUMBER	COORDINATES		STATION	OFFSET
	Y (NORTHING) (ft)	X (EASTING) (ft)		
ORIGIN	1000000.000	2000000.000		
1	1000023.292	1999983.275	100+62.62	-15.690
2	1000014.065	1999999.240	100+53.09	0.000
3	1000002.302	2000019.594	100+39.99	19.705
9	1000015.698	1999983.480	100+55.26	-15.689
10	1000009.967	1999982.708	100+49.76	-16.692
11	999994.727	2000020.167	100+32.07	19.709

All Coordinate values are suspect

**Problem Workaround:**

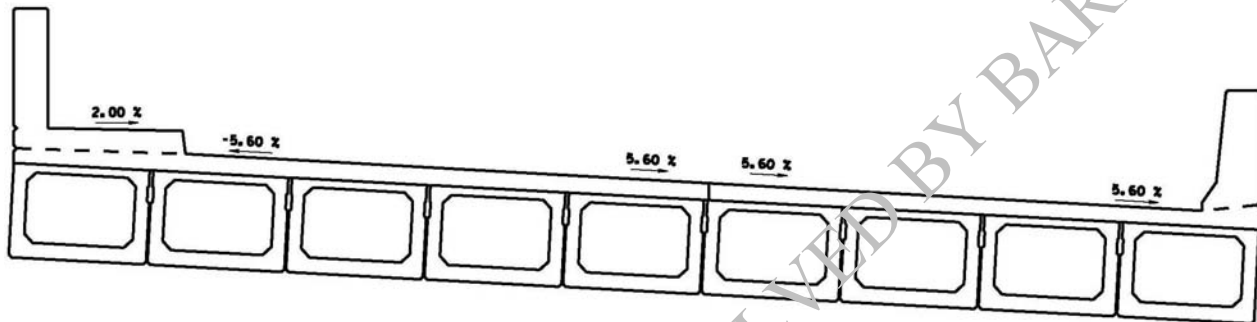
The workaround for this problem is to manually rotate the workpoints shown on the table by the angle of the back tangent reference relative to true North, following the procedure in the BRADD Users Manual, section 3.2.4.2.

**Problem Resolution:**

A fix for this problem is available in BRADD version 3.1.4.1. This version can be downloaded as a patch from the BRADD website.

**2) Problem Statement:**

The beam offset dimensions were being calculated incorrectly on the left side of the deck for adjacent box beam superstructures with positive beam slopes (as specified in Section 7.2.3.6 of the BRADD Users Manual). A positive slope indicates that, looking ahead stations, the beam section has rotated clockwise, as shown in the cross-section below.



This problem resulted in the following issues:

1. A mismatch between the offset value along the left side of the deck in the FRAMING PLAN detail and the Centerline Beam Offset value in the Abutment Bearing Seat Location And Elevation Table details. The values shown in the Abutment Bearing Seat Location And Elevation Table are correct.
2. This problem also affected the values shown in the Beam Offsets tables in the geometry output file, "Geometry.O1".
3. Also affected are the dimensions locating the centerline of beams in the Abutment Plan details.

The maximum value of the effect of this problem will be approximately two times the deck cross-slope times the beam height. An example of this effect can be seen in the following two partial tables. The first partial table is incorrect, from version 3.1.4.0.

**Work Point Coordinates for Superstructures With  
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BEAM OFFSETS LEFT (v3.1.4.0)

Span Number: 1

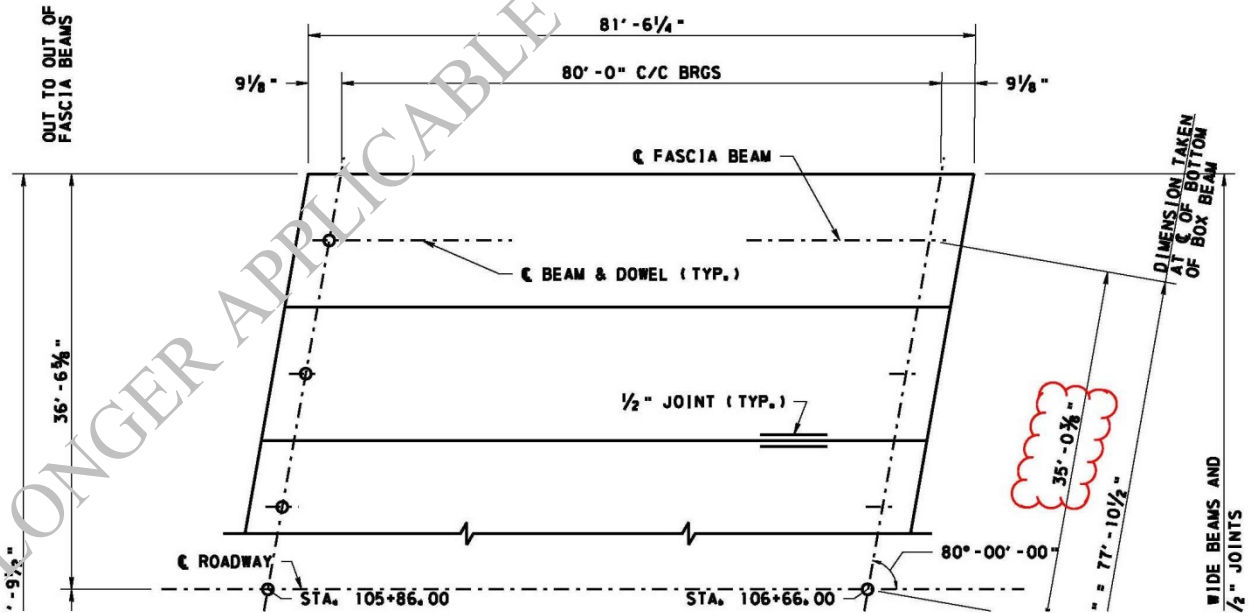
Beam	:	1	2	3	4	5	6	7
Offset(ft)	:	-37.009	-34.979	-32.949	-32.911	-30.880	-28.850	-28.812
Beam	:	8	9	10	11	12	13	14
Offset(ft)	:	-26.782	-24.752	-24.714	-22.684	-20.653	-20.616	-18.585

BEAM OFFSETS LEFT (v3.1.4.1)

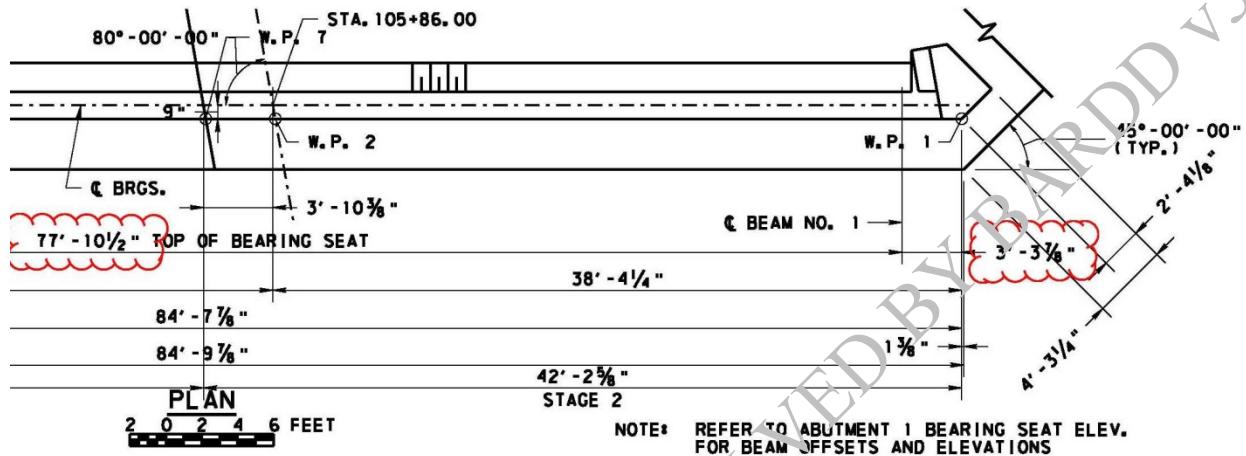
Span Number: 1

Beam	:	1	2	3	4	5	6	7
Offset(ft)	:	-37.116	-35.086	-33.055	-33.012	-30.981	-28.951	-28.908
Beam	:	8	9	10	11	12	13	14
Offset(ft)	:	-26.877	-24.847	-24.804	-22.773	-20.743	-20.700	-18.669

The following partial Framing Plan detail shows the dimension referencing the centerline of beam 1 that was corrected by this patch.



The following partial Abutment Plan detail shows the dimensions referencing the centerline of beam 1 that were corrected by this patch.

**Problem Workaround:**

There is no workaround, except to calculate the beam offsets manually and update the left beam offset shown in Framing Plan detail and the dimensions referencing the centerline of beam 1 in the Abutment Plan detail.

**Problem Resolution:**

A fix for this problem is available in BRADD version 3.1.4.1. This version can be downloaded as a patch from the BRADD website.

**3) Problem Statement and Resolution:**

In addition, the DXF issue previously reported in E-Notification 022 has been incorporated in the BRADD version 3.1.4.1 patch, so it will be automatically installed.

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# BRADD

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## Work Point Coordinates for Superstructures With Integral Abutments and Beam Offsets for Adjacent Box Beams

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### Installing BRADD Version 3.1.4.1 Patch for Licensees

To download, go to the Downloads page on the BRADD web-site at <http://bradd.engrprograms.com> and select to download the BRADD version 3.1.4.1 Patch (BRADD\_3141\_patch.exe). Run this executable on workstations with BRADD version 3.1.4.0 already installed and accept all defaults.

NOTES: To uninstall BRADD, you should uninstall the patches in reverse order starting with ("BRADD Patch v3.1.4.1"), and once all patches are uninstalled then uninstall the full installation ("BRADD v3.1.4.0"). Also, having uninstalled any patch, the full installation will no longer work. In order to run BRADD v3.1.4.0, you will need to uninstall and reinstall that version.

### Installing BRADD Version 3.1.4.1 Patch for PENNDOT

PENNDOT's CADD workstations will be updated by the PENNDOT's CADD Support Unit. PENNDOT CADD users should contact PENNDOT BRADD's Manager for information or questions regarding the schedule for the rollout of this patch.

Please direct any questions to:

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