New Jersey Department of Transportation
1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600

Baseline Document Change Announcement

Longitudinal Joints and Visual Defects

BDC03S-07

December 31, 2003

Subject: Revisions to the *2001 Standard Specifications for Road and Bridge Construction*, Subsections 404.08, 404.17, 404.18 and 404.26 Related to Longitudinal Joints and Visual Defects

Subsections 404.08, 404.17, 404.18 and 404.26 of the *2001 Standard Specifications for Road and Bridge Construction* have been revised to improve the quality of longitudinal pavement joints and include specifications to identify and method to compute pay adjustment for unacceptable visual defects in the pavement.

The revisions have been incorporated into the Standard Inputs via SI2001E1 and SI2001M1 dated December 31, 2003.

The changes to SI2001E1 are as follows:

404.08 HMA Paver.
THE SEVENTH PARAGRAPH IS DELETED.

404.17 Spreading and Finishing.
SUBPART 1. "LONGITUDINAL JOINTS" IS CHANGED TO:

1. **Longitudinal Joints.** All longitudinal joints shall be cleaned free from dust and coated with a uniform application of tack coat in a separate application before coating the surface upon which the HMA is to be placed. For echelon paving the longitudinal joints need not be tacked.

   The paving shall be done with the spring loaded end plates of the paver in the "down" position. When constructing the first lane, care shall be exercised in rolling so as not to displace the line and grade of the edges of the HMA. The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6 inches. The joint in the surface course shall be offset from the lane lines by 6 inches except for the centerline of a roadway in which the joint shall fall between the double yellow traffic stripe.

   Paving, compaction and the supply of material shall proceed at a uniform rate with minimal or no stopping.

   If a single paver does not spread the HMA material the entire width of the roadway, two pavers shall be used provided that the rate of production of HMA material can be maintained. The second unit shall follow within 300 feet of the first unit in echelon, so as not to permit cooling of the longitudinal joint between the two lanes. If echelon paving is to be utilized, the distance that the screed and end gate of the trailing paver shall extend over the uncompacted HMA layer behind the first paver shall be 1 inch or less. The inside end gate of the second paver must be set at the same level as the bottom of the screed plate of the first paver. Raking of the joint is not needed.

A wedge joint shall be constructed when traffic is to be maintained and lift thickness is greater than $2^1/_4$ inches. A vertical edge joint will be permitted for lift thickness $2^1/_4$ inches or less when traffic has to be maintained. For lift thickness greater than $2^1/_4$ inches and traffic is not required to be maintained, a vertical edge shall be utilized.

Longitudinal joints shall be constructed utilizing one of the following methods:

A. Vertical Edge Joint. The HMA material being placed in the abutting lane shall be tightly crowded against the vertical face of the previously placed HMA layer. The paver shall be positioned so that in spreading, the material overlaps the edge of the lane previously placed by 1 to 2 inches and shall be left sufficiently high to allow for compaction. In general, the height of the uncompacted HMA above the compacted HMA shall be $^1/_4$ inch for each 1 inch of compacted mix. When compacted, the new mat at the joint shall be even or slightly higher (Maximum 1/8 inch) than the previously placed adjoining mat. If the newly compacted mat results in a depression at the joint of $^1/_8$ of an inch or more lower than the previously placed adjacent HMA layer, all paving operations shall cease until corrective action is taken by the Contractor to prevent reoccurance. For all longitudinal joints that do not meet this requirement, the Contractor shall saw joints according to dimension guidelines of Subsection 404.19 and seal with an approved sealer.

B. Wedge Joint. The sloped plate of the paver shall produce a wedge edge having a face slope of 3H:1V. The bottom of the sloped plate shall be mounted 1 inch above the existing surface. The plate shall be interchangeable on either side of the screed. The Contractor shall maintain the wedge configuration under traffic conditions.

All loose material shall be removed from the Traveled Way before opening to traffic. The rolling operation of the adjoining lane shall proceed as indicated in subpart A above.

To assure a true line, the paver shall closely follow lines or markings placed along the joint for alignment purposes. All longitudinal joints shall be constructed parallel to the centerlines within a tolerance of plus or minus 3 inches for every 100 linear feet. If this tolerance is not met, the mat shall be cut back to conform. The width and depth of overlapped material shall be kept uniform at all times. Overlapped material shall be luted back, pushing the material off of the cold HMA and onto the hot HMA mat directly over the joint. In no case shall excess material be broadcast across the new layer. All excess material shall be removed.

404.18 Compaction.

THE FOLLOWING IS ADDED AFTER THE FOURTH PARAGRAPH:

Care shall be taken to prevent lateral displacement of the unconfined edge during the compaction operation. The edge of the drums of vibratory or static wheel rollers shall extend over the free edge of the mat by at least 6 inches. When compacting the joint, while paving the adjacent lane, the roller shall be placed on the newly placed HMA and overlap the joint by a distance of approximately 6 inches, however this does not prohibit compaction from the previously placed HMA.

THE FIFTH PARAGRAPH IS CHANGED TO:

Alternate trips of the roller shall be terminated in stops approximately 2 feet from the preceding stop. During the compaction process rollers compacting the mat behind the lead paver shall maintain approximately 6 inches of uncompacted material adjacent to the second paver. After mix from the second paver is placed against the uncompacted edge of the mat from the first paver, the rollers shall compact the HMA on both sides of the joint.

The Contractor shall submit a plan, to ensure proper compaction of the wedge edge, for the Resident Engineer's approval prior to the commencement of paving operations.

THE FOLLOWING IS ADDED AFTER THE ELEVENTH PARAGRAPH:

After compaction has been completed, the pavement shall be free of all visible defects such as segregation, bleeding, ruts, ridges, roller marks, cracking, tearing, raveling, open or segregated transverse or longitudinal joints, depressed or raised areas around manholes or raised areas around inlets in the Traveled Way or any other defects, as determined by the Resident Engineer. All visible defects shall be repaired to the satisfaction of the Resident Engineer at no additional cost to the State.

At the discretion of the Resident Engineer where it is deemed to be impractical to repair such visible defects, a payment reduction due to nonconformance will be applied according to Subsection 404.26.

404.26 Basis of Payment.

THE FOLLOWING IS ADDED AFTER THE FIFTH PARAGRAPH:

Payment reduction calculations for irrepairable visible defects as determined by the Resident Engineer shall be as follows:

1. **Longitudinal and Transverse Joints.** A total length in feet of defective joints multiplied by $20.00.
2. **Other Defects.** A total area in square feet of defective area multiplied by $10.00.

The changes to SI2001M1 are as follows:

404.08 HMA Paver.

THE SEVENTH PARAGRAPH IS DELETED.

404.17 Spreading and Finishing.

SUBPART 1. "LONGITUDINAL JOINTS" IS CHANGED TO:

1. **Longitudinal Joints.** All longitudinal joints shall be cleaned free from dust and coated with a uniform application of tack coat in a separate application before coating the surface upon which the HMA is to be placed. For echelon paving the longitudinal joints need not be tacked.

   The paving shall be done with the spring loaded end plates of the paver in the "down" position. When constructing the first lane, care shall be exercised in rolling so as not to displace the line and grade of the edges of the HMA. The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 150 millimeters. The joint in the surface course shall be offset from the lane lines by 150 millimeters except for the centerline of a roadway in which the joint shall fall between the double yellow traffic stripe.

   Paving, compaction and the supply of material shall proceed at a uniform rate with minimal or no stopping.

   If a single paver does not spread the HMA material the entire width of the roadway, two pavers shall be used provided that the rate of production of HMA material can be maintained. The second unit shall follow within 90 meters of the first unit in echelon, so as not to permit cooling of the longitudinal joint between the two lanes. If echelon paving is to be utilized, the distance that the screed and end gate of the trailing paver shall extend over the uncompacted HMA layer behind the first paver shall be 25 millimeters or less. The inside end gate of the second paver must be set at the same level as the bottom of the screed plate of the first paver. Raking of the joint is not needed.

   A wedge joint shall be constructed when traffic is to be maintained and lift thickness is greater than 57 millimeters. A vertical edge joint will be permitted for lift thickness 57 millimeters or less when traffic has to be maintained. For lift thickness greater than 57 millimeters and traffic is not required to be maintained, a vertical edge shall be utilized.

   Longitudinal joints shall be constructed utilizing one of the following methods:

   A. Vertical Edge Joint. The HMA material being placed in the abutting lane shall be tightly crowded against the vertical face of the previously placed HMA layer. The paver shall be positioned so that in spreading, the material overlaps the edge of the lane previously placed by 25 to 50 millimeters and shall be left sufficiently high to allow for compaction. In general, the height of the uncompacted HMA above the compacted HMA shall be 6 millimeters for every 25 millimeters of compacted mix. When compacted, the new mat at the joint shall be even or slightly higher (Maximum 3 millimeters) than the previously placed adjoining mat. If the newly compacted mat results in a depression at the joint of 3 millimeters or more lower than the previously placed adjacent HMA layer, all paving operations shall cease until corrective action is taken by the Contractor to prevent reoccurance. For all longitudinal joints that do not meet this requirement, the Contractor shall saw joints according to dimension guidelines of Subsection 404.19 and seal with an approved sealer.

   B. Wedge Joint. The sloped plate of the paver shall produce a wedge edge having a face slope of 1V:3H. The bottom of the sloped plate shall be mounted 25 millimeters above the existing surface. The plate shall be interchangeable on either side of the screed. The Contractor shall maintain the wedge configuration under traffic conditions.

   All loose material shall be removed from the Traveled Way before opening to traffic. The rolling operation of the adjoining lane shall proceed as indicated in subpart A above.

   To assure a true line, the paver shall closely follow lines or markings placed along the joint for alignment purposes. All longitudinal joints shall be constructed parallel to the centerlines within a tolerance of plus or

minus 75 millimeters for every 30 linear meters. If this tolerance is not met, the mat shall be cut back to conform. The width and depth of overlapped material shall be kept uniform at all times. Overlapped material shall be luted back, pushing the material off of the cold HMA and onto the hot HMA mat directly over the joint. In no case shall excess material be broadcast across the new layer. All excess material shall be removed.

404.18 Compaction.

THE FOLLOWING IS ADDED AFTER THE FOURTH PARAGRAPH:

Care shall be taken to prevent lateral displacement of the unconfined edge during the compaction operation. The edge of the drums of vibratory or static wheel rollers shall extend over the free edge of the mat by at least 150 millimeters. When compacting the joint, while paving the adjacent lane, the roller shall be placed on the newly placed HMA and overlap the joint by a distance of approximately 150 millimeters, however this does not prohibit compaction from the previously placed HMA.

THE FIFTH PARAGRAPH IS CHANGED TO:

Alternate trips of the roller shall be terminated in stops approximately 600 millimeters from the preceding stop. During the compaction process rollers compacting the mat behind the lead paver shall maintain approximately 150 millimeters of uncompacted material adjacent to the second paver. After mix from the second paver is placed against the uncompacted edge of the mat from the first paver, the rollers shall compact the HMA on both sides of the joint.

The Contractor shall submit a plan, to ensure proper compaction of the wedge edge, for the Resident Engineer's approval prior to the commencement of paving operations.

THE FOLLOWING IS ADDED AFTER THE ELEVENTH PARAGRAPH:

After compaction has been completed, the pavement shall be free of all visible defects such as segregation, bleeding, ruts, ridges, roller marks, cracking, tearing, raveling, open or segregated transverse or longitudinal joints, depressed or raised areas around manholes or raised areas around inlets in the Traveled Way or any other defects, as determined by the Resident Engineer. All visible defects shall be repaired to the satisfaction of the Resident Engineer at no additional cost to the State.

At the discretion of the Resident Engineer where it is deemed to be impractical to repair such visible defects, a payment reduction due to nonconformance will be applied according to Subsection 404.26.

404.26 Basis of Payment.

THE FOLLOWING IS ADDED AFTER THE FIFTH PARAGRAPH:

Payment reduction calculations for irrepairable visible defects as determined by the Resident Engineer shall be as follows:

1. **Longitudinal and Transverse Joints.** A total length in meters of defective joints multiplied by $65.00.
2. **Other Defects.** A total area in square meters of defective area multiplied by $108.00.

Distribution and Announcement Access Information

This announcement is being distributed electronically to our in-house staff and various public agencies based on our Standard Specifications distribution list maintained by the Engineering Documents Unit.

Internet access to this BDC Announcement can be downloaded and viewed from the following New Jersey Department of Transportation Web Page:

http://www.state.nj.us/transportation/cpm/BaselineDocuments/bdcdownloads.htm.

Hard copies of this document can be acquired on a limited basis by contacting:

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Implementation Code R (ROUTINE)

Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

Recommended By:

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