



**MARICOPA COUNTY**  
*Department of Transportation*

MEMORANDUM

**Date:** June 3, 2015

Revised 9/2/2015

**To:** MAG Specifications and Details Committee

**From:** Robert Herz, MCDOT Representative

**Subject:** Revise Sections 321 and 325 to coordinate overlay work requirements.

**Case 15-14**

**PURPOSE:** Coordinate overlay work requirements within Sections 321 and 325. Clarify measurement and payment for work associated with the construction of Safety Edges. Eliminate the 10% overrun penalty for pavements less than 2.5 inches in thickness (overlays). Add measurement and payment sections for Safety Edge Preparation for overlay projects that require construction of a safety edge when none exists.

**REVISIONS:** Shown below using red-line strike-out format.

Revised revision dated 7/14/2015 by deleting the requirement to remove Thermoplastic Markings prior to overlay work.

**SECTION 321 - PLACEMENT AND CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT**

**321.8.6 Asphalt Concrete Overlay:** Asphalt concrete overlay consists of the placing and compacting plant mix asphalt concrete over existing pavement. The mix design and thickness of the overlay shall be as shown on the plans or as specified in the special provisions.

Except when the existing asphalt surface is to be preheated and remixed, pavement surfaces shall be prepared as follows:

(a) Areas designated for pavement repair by the contract documents (which may include severely raveled areas, severely cracked areas, over-asphalted areas, and other defects) shall be cut out and replaced. Pavement repairs shall be completed and approved before placing asphalt concrete overlay.

(b) Before placing asphalt concrete overlay, raised pavement markers shall be removed and milling shall be ~~done-completed~~. Milling shall be as shown on the plans or specified in the special provisions and shall be in accordance with Section 317.

(c) After pavement repairs and milling have been completed the entire surface shall be cleaned with a power broom.

(d) After surfaces have been prepared to the satisfaction of the Engineer, they shall receive a tack coat per Section 321.4. Traffic will not be permitted to travel over surfaces which have received a tack coat, except

when tack coat is applied to milled surfaces in compliance with Section 317.2 for dust control purposes. When the overlay is to extend onto a concrete ~~gutter surface~~, the ~~gutter concrete surface~~ shall be thoroughly cleaned of loose dust and cement particles and shall be tack coated.

Asphalt concrete overlay shall be placed as specified in Section 321.8.1 and compacted as specified in Section 321.8.4. The surface smoothness shall meet the tolerances specified in Section 321.8.5.

Frames and covers of manholes, survey monuments, valve boxes, clean-outs and other existing structures shall be adjusted in accordance with Section 345 to set flush with the finished surface of the new pavement. During adjustment if pavement or base materials are removed or disturbed, they shall be replaced with approved materials installed in a manner acceptable to the Engineer.

On roads without curb and gutter, the existing unpaved shoulder elevation shall be adjusted by the Contractor to match the elevation at the edge of the new overlay and slope away from the new pavement surface at a rate that the existing quantity of shoulder material will allow. Shoulder material shall be compacted to a minimum of 95% of maximum density, determined in accordance with Section 301.3. Shoulder adjustment to match the new pavement surface elevation shall not be measured. The cost of shoulder adjustment shall be included in the price paid for the asphalt concrete overlay or other related pay items. When the Engineer determines an insufficient amount of material is available for shoulder adjustment, the Engineer may require the Contractor to provide additional material. Acceptable material for shoulders includes the existing shoulder material, millings, untreated base materials, or a granular material approved by the Engineer. Engineer requested imported material for shoulder adjustment is not included in the price paid for the asphalt concrete overlay.

#### **321.12 MEASUREMENT:**

Asphalt concrete pavement will be measured by the ton, or by the square yard, for the mixture actually used as allowed above, which shall include the required quantities of mineral aggregates, asphalt binder, and mineral admixture. Measurement shall include any tonnage used to construct intersections, roadways, streets, or other miscellaneous surfaces indicated on the plans or as directed by the Engineer.

Measurement for Safety Edge Preparation only applies to overlays of existing pavements that require the construction of a safety edge when none exists. Safety Edge Preparation will be measured by the linear foot. Safety Edge Preparation will not be measured when a safety edge is part of new pavement construction, pavement widening, or when overlaying an existing pavement that contains a safety edge. The asphalt concrete pavement measurement shall include the tonnage used to construct safety edges or the square yard measurement for asphalt concrete pavement will be increased by the horizontal extension of the safety edge beyond the roadway pavement edge.

#### **321.13 PAYMENT:**

The asphalt concrete measured as provided above will be paid for at the contract price per ton or square yard, as adjusted per Section 321.10, which price shall be full compensation for the item complete, as herein described and specified.

Payment for tack coat will be by the ton diluted, based on the rate of application, as directed by the Engineer.

No payment will be made for any overrun in quantity of asphalt concrete in excess of 10 percent for newly constructed pavement having a total thickness equal to or greater than 2.5 inches. The overrun quantity is excess tonnage above the tonnage calculated based on actual field measurement of area covered, design thickness, and the mix design unit weight. The calculations ~~and payment~~ for overrun will be by individual pay item. To compensate or adjust for a thickness deficiency in an underlying asphalt concrete course, the Engineer may authorize a quantity

increase in excess of 10 percent for a subsequent asphalt concrete course. In such cases, the quantity in excess of 10 percent will be paid for at the lowest unit price.

~~Removal of raised pavement markers, pavement repairs, and surface pavement replacements Agency-required repairs of existing pavement~~ prior to roadway overlay operations will be paid for ~~as a separate-by other~~ pay items ~~unless otherwise specified~~.

Except as otherwise specified, no separate payment will be made for work necessary to construct thickened edges, safety edges, or other miscellaneous items or surfaces of asphalt concrete.

Payment for Safety Edge Preparation will be at the contract unit price for the quantities measured as described above.

## SECTION 325 - PLACEMENT AND CONSTRUCTION OF ASPHALT-RUBBER ASPHALT CONCRETE

### 325.7 PLACEMENT:

#### 325.7.1 Surface Preparation:

~~The provisions for preparation of pavement surfaces in Section 321.8.6 (Asphalt Concrete Overlay) shall apply to ARAC overlays. Placement, compaction, and surface smoothness shall be as specified in this section—Before placing ARAC on existing pavements, severely raveled areas or cracked areas that are depressed more than 3/4" from the adjoining pavement shall be cut out and patched at least 48 hours prior to the resurfacing operation. Over-asphalted (bleeding or flushing) areas or rough high spots shall be removed by burning or blading. Large shrinkage cracks shall be filled with asphalt sealing compound acceptable to the Engineer. The entire surface shall be cleaned with a power broom. Raveled areas that do not require removing shall be cleaned by hand brooming. The above surface cleaning requirements are included as part of the ARAC paving operations, and the cost thereof shall be included in the ARAC pay item. Pavement repairs and crack sealing when required are to be compensated for by other appropriate contract pay items.~~

~~Prior to placing the ARAC on milled surfaces, pot holes left by the milling operation shall be repaired by the Contractor, as a related non pay item and as required by the Engineer. The milled area shall be swept.~~

After surfaces have been prepared to the satisfaction of the Engineer, they shall receive a tack coat as specified in Section 325.4.

Traffic will not be permitted over surfaces which have received a tack coat. When the overlay is to extend onto a concrete surface, the concrete surface shall be thoroughly cleaned of loose dust and cement particles and shall be tack coated.

#### 325.7.2 Placing and Construction Methods:

All courses of ARAC shall be placed and finished by means of a self-propelled paving machine equipped with an automatically actuated control system, except under certain conditions or at locations where the Engineer deems the use of a self-propelled paving machine impracticable. Safety edge construction when required shall comply with section 321.8.9.

The control system shall control the elevation of the screed at each end by controlling the elevation of one end directly and the other end indirectly either through controlling the transverse slope or alternatively when directed, by controlling the elevation of each end independently.

The control system shall be capable of working with one of the following devices:

- (A) Ski or non-contact device of not less than 30 feet in length, supported throughout its entire length
- (B) Taut stringline or wire set to grade
- (C) Short ski or sonar sensing units from curb control
- (D) Joint matching shoe

Failure of the control system to function properly shall be cause for the suspension of asphalt concrete production. In order to achieve a continuous operation, the speed of the paving machine shall be coordinated with the hot mix plant and transport units.

The ARAC shall be dumped from the hauling vehicles directly into the paving machine, unless otherwise approved by the Engineer.

Care shall be taken to avoid jarring the machine or moving it out of alignment. No vertical load shall be exerted on the paving machine by the truck.

If ARAC is dumped upon the surface being paved and subsequently loaded in the paving machine, the loading equipment shall be self-supporting and shall not exert any vertical load on the paving machine. Substantially all of the ARAC shall be picked up and loaded into the paving machine. If ARAC is placed in a windrow during paving, the windrow shall not exceed a distance greater than 150 feet in front of the paving machine.

Self-propelled paving machines shall spread the mixture without segregation or tearing, true to line, grade and crown as indicated on the project plans. Pavers shall be equipped with hoppers and augers that will distribute the mixture uniformly in front of an adjustable floating screed. The raising of the hopper wings shall be minimized and the paving machine shall not be operated when in an empty condition.

Screeds shall include any strike-off device operated by tamping or vibrating action which is effective, without tearing, shoving or gouging the mixture and which produces a course with a uniform texture and density for the full width being paved. Screeds shall be adjustable as to height and crown and shall be equipped with a controlled heating device for use when required. In the case of the screed, auger extensions and vibrators shall be installed wherever the screed is extended more than one (1) foot beyond the end of the base auger or auger extension. However, when placing material against an extremely uneven curb or edge over a short distance, the Engineer may waive the auger extensions and vibrators.

### **325.11 MEASUREMENT:**

ARAC shall be measured by the ton, for the mixture actually used, which shall include the required quantities of mineral aggregates, filler material, asphalt-rubber binder and admixture.

Application of lime water shall be measured by the square yard. The measured area shall be the area of ARAC pavement to which the lime water is applied. The measured area shall only be counted one time regardless of the number of applications applied to the ARAC pavement section.

Except as otherwise specified, no separate measurement will be made for work required for the construction of safety edges or for the grading and compaction for S<sub>s</sub>houlder adjustment to match the new pavement surface elevation ~~shall not be measured~~. The cost of this work shall be included in the price paid for ARAC or other related

pay items. Engineer requested imported material for shoulder adjustment is not included in the price paid for the ARAC.

Measurement for Safety Edge Preparation only applies to overlays of existing pavements that require the construction of a safety edge when none exists. Safety Edge Preparation will be measured by the linear foot. Safety Edge Preparation will not be measured when a safety edge is part of new pavement construction, pavement widening, or when overlaying an existing pavement that contains a safety edge.

**325.12 PAYMENT:**

Payment for asphalt milling will be as specified in Section 317.

Removal of raised pavement markers, pavement repairs, and surface pavement replacements required prior to roadway overlay operations will be paid for by other pay items unless otherwise specified.

Payment for Safety Edge Preparation will be at the contract unit price for the quantities measured as described above.

Payment for tack coat will be by the ton diluted, based on the rate of application, as directed by the Engineer.

Payment for ARAC will be at the contract unit price, complete in place.

Application of Lime Water as approved by the Engineer will be paid at the contract unit price.

Payment for frame and cover adjustments will be at the contract unit prices specified in the proposal.