

# MODIFICATIONS TO STANDARDS

## SPECIFICATION & PARA. REQUESTED MODIFICATION & JUSTIFICATION

**P-401 PLANT MIX BITUMINOUS PAVEMENTS; para. 401-3.2 Job Mix Formula, Table 3. Aggregate Bituminous Pavements and accompanying Engineer's Note: delete the line in the table that refers to Sieve Size No. 100 (0.150 mm).**

**Justification:**

Aggregate gradation control is a relatively quick and easy quality control check commonly used for Hot Mix Asphalt (HMA) mixtures. Gradation affects the mixture volumetric properties (air voids, VMA, etc.) which are direct indicators of the desired properties of the HMA, such as stability, stiffness, durability, permeability, fatigue resistance, etc. A combination of gradation and volumetrics is commonly utilized for control of HMA. Some state DOTs have graduated from gradation control to only volumetric control.

When applying gradation control, particle size distribution (gradation) and consistency must be controlled within gradation bands that will result in HMA volumetrics within a desired range. As the gradation specification limits have typically been established, the question becomes what sieves will provide the needed control?

Since the construction equipment (crushing, screening, etc.) typically functions on the nominal maximum size and separating the fines (No. 4), these sieves are obviously important for inclusion. To ensure a properly graded coarse fraction, which is directly related to many volumetric properties, control is necessary at the maximum size and on the 1/2 inch and 3/8 inch sieves. Crushed fines and sand are critical to the overall stability and permeability of the mix, therefore control of the No. 8 and No. 30 is included. Since mineral filler (natural fines... either added or occurring normally) can affect the stability and flexibility of the mix, control of the No. 200 sieves is necessary.

Including the No. 100 sieve does not accomplish control of any identifiable aggregate. From review of WYDOT and UDOT specifications, the common sieve sizes included for HMA aggregate gradation control are: 1 inch, 3/4 inch, 1/2 inch, 3/8 inch, No. 4, No. 8, No. 30, No. 200. These are the sieves that the aggregate suppliers have established as quality control on their stockpiled materials.

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10/16/09

APPROVED BY (FAA)

Craig A Sparks

Attachment A