POROUS ASPHALT PAVEMENT SURFACE COURSE

July 20, 2007

PAPS.01 Description. This work shall consist of constructing a Porous Asphalt Pavement Surface (PAPS) course comprised of aggregate and polymer-modified asphalt binder mixed in a central plant and spread and compacted on a prepared surface.

All numbered specification references in this document refer to Ohio Department of Transportation (ODOT), Construction and Material Specifications

Comply with the requirements of 401 with the following deviations:

PAPS.02 Composition. Use a job mix formula (JMF) that meets the requirements of ODOT Supplemental Specification 803 and has previous approval by the ODOT Laboratory. If a previously approved JMF is not available, design the mixture to conform to the materials requirements provided below.

Furnish materials conforming to:
Asphalt binder .....702.01, PG76-22M, PG 64-22[3]
Aggregates[1] 703.05
Percent mechanically crushed[2] particles 95
Mineral filler 703.07
Rubber compound 702.14

Notes:
1. Air cooled slag is NOT required.
2. Mechanically crushed particles are particles having rough angular edges. Particles exhibiting mechanically crushed characteristics will be counted as mechanically crushed regardless of how the fracture occurred.
3. Where PG64-22 binder is used provide a quantity of asphalt binder and rubber compound as required to produce a composition of 95 ±0.3 percent asphalt binder to 5±0.3 percent rubber solids by weight.

Do not use reclaimed asphalt concrete.

Proportion the materials such that the resulting blend is within the following limits:

Sieve	Total Percent Passing
1/2 inch (12.5 mm)	100
3/8 inch (9.5 mm)	85 - 96
No. 4 (4.75 mm)	28 - 45
No. 8 (2.36 mm)	9 - 17
No. 200 (75 µm)	2 – 5
Asphalt binder (percent by weight of total mix)	5.5 – 12.0

Determine the mixture proportions using the design procedure outlined in FHWA Technical Advisory T5040.31 or by the National Center for Asphalt Technology (NCAT) mix design procedure (Report 99-3, *Design of New Generation Open Graded Friction Courses*, available at www.ncat.us). Compose the mixture to assure 15 to 20 percent air voids in the compacted pavement. Use an approved ODOT Level 3 Asphalt Laboratory and Level 3, Asphalt Concrete Technician to determine the job mix formula (JMF).

PAPS.03 Design Verification. A minimum of 3 weeks before the production of the mixture, submit for approval a computed blend of aggregate and asphalt binder, and production temperature range. Use ODOT JMF forms for this submittal. Final design acceptance is subject to field verification and actual performance. Field verification may include additional testing by the owner.

PAPS.04 Mixing. Mix the aggregate and asphalt binder material within the established temperature range until all the aggregate is coated. Provide a mixture that does not show draindown of the asphalt binder, is shiny, completely coated, and is not dull or brown in appearance; a sign of excessive absorption or low asphalt binder content.

PAPS.05 Weather Limitations. Spread the mixture when the surface temperature is at least 55 ^{o}F (13 ^{o}C) and rising. Do not place the mixture when rain is imminent. Cease all operations if rain occurs during placement. Do not place the mixture during any weather conditions that would cause its degradation, segregation, or contamination.

PAPS.06 Spreading and Compacting. Spread the mixture in a method that produces a smooth, uniform layer before compacting. A rubber-tired paver is acceptable provided its use does not substantially displace or damage the underlying layer; otherwise, use a track-mounted paver.

Compact the mixture using a minimum of one (1) pass of a static tandem steel wheel roller, completely seating the aggregate particles. Use rollers with a maximum capacity of 2030 square yards per hour (1700 square meters per hour). Do not over-compact resulting in crushed or broken aggregate. Complete rolling before the mix temperature has dropped below 250 °F (120 °C).

PAPS.07 Protection of the PAPS. Do not haul over the mixture. Protect the mixture at all times from contamination by soil or other fine material.

PAPS.08 Quality Control Testing. Test the mix according to 441.09 for asphalt binder content and gradation. Control the mixture production as follows:

A. If a single asphalt binder content is more than ±0.5 percent beyond the JMF, immediately take and test and additional sample.
B. If two consecutive asphalt binder content tests are more than ±0.5 percent beyond the JMF, notify the owner's representative and cease production until the problem is corrected.
C. If the Range difference in any three consecutive asphalt binder content tests is greater than 0.6 percent immediately notify the owner's representative.
D. If the Range difference in any three consecutive gradation tests for the No. 4 (4.75 mm) sieve is greater than 10.0 percent, immediately notify the owner's representative.
E. If range deviations as specified continue, cease production.

Range is defined as the difference between the largest and the smallest acceptance test result within an acceptance period (production day or lot).

PAPS.09 Acceptance. Production is considered acceptable if the following tolerances and the design bands are not exceeded:

Mix Characteristic	Deviation of the Mean from the Design	Range
Binder content	±0.5 percent	1.0
3/8 inch (9.5 mm) sieve	±5 percent	10
No. 4 (4.75 mm) sieve	±5 percent	10
No. 8 (2.36 mm) sieve	±4 percent	8
No. 200 (75 μm) sieve	±2 percent	4

PAPS.10 Method of Measurement. The conversion factors for this mix, listed in the following table, are based on average dry rodded weight tested in accordance with AASHTO T19 by ODOT.

Dry Rodded Weight	Conversion Factor
pounds/cubic foot (kg/m^3)	pounds/cubic yard (kg/m)
Gravel and stone	4000 (2370)
Slag, less than 90 (1450)	3400 (2020)
Slag, 90 to 100 (1450 to 1600)	3800 (2250)
Slag, more than 100 (1600)	4100 (2430)

PAPS.11 Basis of Payment. Payment will be made for accepted quantities, complete in place, at the contract price as follows:

	Unit	Description
PAPS	Cubic Yard (Cubic Meter)	Porous Asphalt Pavement Surface Course