

SUPPLEMENTAL SPECIFICATION

AMENDMENT TO SECTION 401 – PLANT MIX PAVEMENTS – GENERAL

The purpose of this Supplemental Specification is to revise cross slope tolerance to .4 percent, improve Contractor Quality Control/Quality Assurance, revise the protocol for measuring cross slope and update personnel titles.

Amend 3.17.1 to read:

3.17.1 Quality Control.

3.17.1.1 The Contractor shall operate in accordance with a Quality Control Plan, hereinafter referred to as the "Plan", sufficient to assure a product meeting the Contract requirements. The plan shall meet the requirements of 106.03.1 and these special provisions.

3.17.1.2 The Plan shall address all elements which affect the quality of the Plant Mix Pavement including, but not limited to, the following:

- (a) Job mix formula(s).
- (b) Hot asphalt mix plant details.
- (c) Stockpile Management.
- (d) Make & type of paver(s).
- (e) Make & type of rollers including weight, weight per in. of steel wheels, and average ground contact pressure for pneumatic tired rollers.
- (f) Name of Plan Administrator.
- (g) Name of Process Control Technician(s).
- (h) Name of Quality Control Technician(s).
- (i) Mixing & Transportation.
- (j) Process Control Testing.
- (k) Placing sequence and placing procedure for ride quality.
- (l) Paving and Weather Limitations.
- (m) Sequence for paving around catch basins, under guard rail, around curb, at bridges, and intersections, drives and minor approaches, to ensure a proper finish and drainage.
- (n) Procedure for fine grading the top of the surface to be paved.

3.17.1.3 The Plan shall include the following personnel performing the described functions and meeting the following minimum requirements and qualifications:

- A) **Plan Administrator** shall hold certification as NETTCP QA Technologist and meet one of the following qualifications::
 - 1) Professional Engineer with one year of highway experience acceptable to the Department.
 - 2) Engineer-In-Training with two years of highway experience acceptable to the Department.

- 3) An individual with three years highway experience acceptable to the Department and with a Bachelor of Science Degree in Civil Engineering Technology or Construction.
 - 4) An individual with five years of paving experience acceptable to the Department.
- B) **Process Control Technician(s) (PCT)** shall utilize test results and other quality control practices to assure the quality of aggregates and other mix components and control proportioning to meet the job mix formula(s). The PCT shall periodically inspect all equipment used in mixing to assure it is operating properly and that mixing conforms to the mix design(s) and other Contract requirements. The Plan shall detail how these duties and responsibilities are to be accomplished and documented and whether more than one PCT is required. The Plan shall include the criteria utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the New England States Technician Certification Program or be a Materials Testing Technician in Training, working under the direct observation of a NETTCP certified Plant Technician.
- C) **Quality Control Technician(s) (QCT)** shall perform and utilize quality control tests at the job site to assure that delivered materials meet the requirements of the job mix formula(s). The QCT shall inspect all equipment utilized in transporting, laydown, and compacting to assure it is operating properly and that all laydown and compaction conform to the Contract requirements. The plan shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one QCT is required. The Plan shall include the criteria utilized by the QCT to correct or reject unsatisfactory materials. The QCT shall be certified as a HMA Paving Technician as certified by the NorthEast Transportation Training and Certification Program or be a Materials Testing Technician in Training, working under the direct observation of a NETTCP certified HMA Paving Technician.

3.17.1.4 The Plan shall detail the coordination of the activities of the Plan Administrator, the PCT and the QCT. The Plan shall also detail who has the responsibility to reject material, halt production or stop placement.

3.17.1.4.1 All issues agreed to at the Pre-Paving meeting shall be considered to be part of the Plan.

3.17.1.5 Asphalt pavement shall be sampled, tested, evaluated and recorded by the Contractor in accordance with the minimum process control guidelines in Table 3.

Table 3 - Minimum Process Control Guidelines

PROPERTIES	TEST FREQUENCY	TEST METHOD
Temperature of Mix	6 per day at paver hopper and plant	
Surface Temperature	As needed	
Temperature of Mat	4 per day	
Density	1 per 500 tons (500 metric tons) or minimum 2 per day	AASHTO T 343 or ASTM D 2950
Maximum Theoretical Specific Gravity	1 per day of operation	AASHTO T-209
Fractured Faces	1 per 2000 tons (1800 metric tons) for Gravel Sources only	AASHTO T 11 & AASHTO T 27
Aggregate Gradation & Asphalt Binder content	1 per 750 tons (700 metric tons) recommended	AASHTO T 130 & 164
Asphalt Binder	<i>As needed</i>	AASHTO M 226 M 320
Thickness	Contractor Defined	Contractor Defined
Cross Slope	1 per 5 full stations	Per 3.17.3.5.1

3.17.1.5.1 Cross slope shall be measured on every pavement lift using the method described in 3.17.3.5.1 prior to placement of subsequent lifts. Particular emphasis on the first pavement lift shall be required when correcting existing substandard cross slopes. Cross slope measurements exceeding 0.5 (in percent) from the specified cross slope for that location shall require an adjustment in ongoing or subsequent paving operations to correct the deficiency. If two or more consecutive measured sublots are greater than 0.5 (in percent) from the specified cross slope, paving operations shall cease until the Contractor submits a corrective action satisfactory to the Engineer.

3.17.1.6 Rejection by Contractor. The Contractor may, prior to sampling, elect to remove any defective material and replace it with new material at no expense to the Department.

3.17.1.6.1 No wearing course pavement shall be removed or repaired without prior approval of the Engineer.

3.17.1.7 The Contractor may utilize innovative equipment or techniques not addressed by the specifications or these provisions to produce or monitor the production of the mix, subject to approval by the Engineer.

Amend 3.17.3.5 to read:

3.17.3.5 Cross Slope.

3.17.3.5.1 Cross slope will be measured once per subplot (**per Table 4**) behind the paver after final rolling of the wearing surface has taken place. Cross slope will only be evaluated when specific slopes and superelevations are shown on the plans for the entire project. Only travel lanes will be evaluated for cross slope. Measurements will be taken only in areas of normal tangent or full bank curves on even stations. **Measurement shall take place utilizing one of the following methods, and shall be agreed upon by both parties: “digital read” level and 10 to 12 foot straightedge; “bubble” level, ruler, and 10 to 12 foot straightedge; transit; or electronic positioning equipment as approved by both Contractor and Department. If a straightedge is employed, perpendicularity shall be assured with the use of a right angle prism or other method acceptable to both parties. If a “bubble” or “digital read” level is employed, a second reading 180 degrees to the first shall be made and recorded, and the two shall be averaged for the test result. Measurement data shall be shared between parties within 24 hours of measurement.**

3.17.3.5.2 Once a cross slope percentage has been measured, a cross slope index (CSI) will be calculated. The target cross slope shall be defined as the cross slope shown on the plans or as ordered to the nearest tenth of a percent. The CSI is the actual deviation from the target divided by **0.40** percent, which is the tolerance used for pay factor calculation only. This will allow statistical comparisons to be made among measurements based on varying specified cross slopes. The CSI will be established for the sole purpose of calculating pay factors. The CSI shall be calculated under the following equation using the specification limits in Table 10.

$$CSI = \frac{(M - SCS)}{T}$$

where: CSI = Cross Slope Index
 SCS = Specified Cross Slope in percent
 M = Measured Cross Slope in percent
 T = **0.40**

Table 10 - Acceptable Quality Level Limits

	TARGET	LSL	USL
Cross Slope Index	0.00	-1.00	+1.00

3.17.3.5.3 If three or more consecutive cross slope subplot measurements on the pavement lift used to calculate the pay factor deviate more than 0.5 (in percent) from the specified cross slope value at those locations, those sublots will be considered to exceed the engineering limit of 0.5%. The Contractor shall submit a corrective action plan for approval by the Engineer for cross slope sublots that exceed this limit.

3.17.3.5.4 After the approved corrective action plan is implemented, the sublots will be measured to ensure compliance, but will not be re-measured for the purpose of re-calculating pay factor. Alternatively, the Contractor may submit a written request for acceptance of the material at a negotiated price. The Engineer will determine whether the material may remain in place at the negotiated price.

Amend 3.17.3.6.3 to read:

3.17.3.6.3 Remeasure and Retest. All requests to **the Engineer to remeasure and retest** a subplot shall be in writing. .